

THE AUTOMOBILE

The Record of a Transcontinental Trek



PREMIER CARAVAN WINDING ACROSS THE GREAT MORMON VALLEY TOWARD FOOTHILLS OF WASATCH MOUNTAINS



Where the forgotten wreck of a freight car loaded with seeds made a garden of an abandoned railroad right-of-way

HISTORY was made and a volume of experience chronicled when the Premier caravan, consisting of two six-cylinder and ten four-cylinder cars, crossed the United States from Atlantic City, N. J., to Los Angeles, Cal., last summer in forty-five days' elapsed time, without a considerable mishap.

Single cars had made the trip so frequently across the continent that no special credit resulted from a simple journey from Atlantic to Pacific. Any good car at this stage of automobile development can do it with ease, but the Premier caravan was the first dozen cars to be run over the transcon-

Being the First Installment of an Account of the Ocean-to-Ocean Tour of a Dozen Premier Cars

By JOHN GUY MONIHAN

tinental route. In large part the cars were driven by the owners themselves and their passengers consisted mostly of their families and friends.

There were twenty-six men, ten women and four children in the party which left Atlantic City June 26 and the same were present at the finish at Los Angeles on August 10.

There was no illness en route and the physical condition of the whole party was even better at the end than at the beginning.

In order to carry out such a massive plan much careful preparation was necessary. At first the tourists believed that they would have to make special arrangements for gasoline and oil in the desert country west of the Rocky Mountains. This proved to be unnecessary. Another unnecessary trouble that the tourists put themselves to was the purchase of a camping outfit and emergency commissary with chef and all the things a chef usually works upon.

The main object of the tour was to prove the feasibility of a transcontinental route for amateur automobile owners. Another



Fig. 1—Cars lined up on Continental Divide, sometimes called Corona of Earth

Fig. 2—Starting from Atlantic City, the wheels of the car in the Atlantic Ocean

Fig. 3—The party was composed of ten ladies, thirty-seven men and three boys

Fig. 4—The cars were ferried across the Monongahela River at Brownsville, Pa.

object was the pleasure which was to be found on the trip.

Both these objects were accomplished in a broad, comprehensive sense. The cars all stood up, as might be expected of good automobiles. The road was found passable from end to end, and with some improvement the trip might be made by almost anybody under almost any circumstances.

The details of the equipment carried by the caravan, and some of the reasons for each item, are as follows:

What the Tool Kits Contained

No tools were carried other than those found in the regular tool equipment of the cars with the exception of valve-grinding materials and apparatus, about 5 pounds of waste, a roll of adhesive tape, and a full tire-repair outfit. A short-handled shovel, 20 feet of 3-4-inch rope, one double-action tire-pump, one Barrett jack, and a roll of copper wire was all the supplementary equipment found desirable to carry.

All these were carried in the tool case with the exception of the shovel and rope, which were carried on the running boards of all cars. The two extra shoes were carried on the running board, and the tubes under the rear seat. On one car extra cases were carried in the tonneau, strapped to the front seat, which, if room is available, is much the better place, as it tends to correct unevenness of the load. This is also desirable because in passing through narrow places in brush it prevents any overhanging beyond the mud guards of the car and keeps the water and mud out of the tires.

Experience taught that it was advisable to carry all baggage within the car as the use of trunk racks in the rear tends to upset the proper distribution of weight, adds to the tendency to skid on wet roads and wears on the tires. They have the further disadvantage of the possibility of being broken off when the car is crossing washouts or deep arroyos or gulleys.

A top is an essential. Any kind of a light top, strongly underbraced, is all that is necessary, and on the trip it was found essential to carry the top up during the entire journey. They do not seriously interfere with the view, even in the mountainous districts, and are a great comfort to the occupants of the car.

On this trip the shelter given was such that none of the party showed the effects of the sun, much to the disappointment of some of the ladies and all of the boys, who were ambitious to appear weather beaten and in other ways show the effects of desert traveling. It will be a source of comfort to all women who are contemplating a transcontinental tour to know that the complexion of none of the ladies of the party was injured.

Storm curtains are essential and with the car completely inclosed a very comfortable emergency sleeping place is at hand.

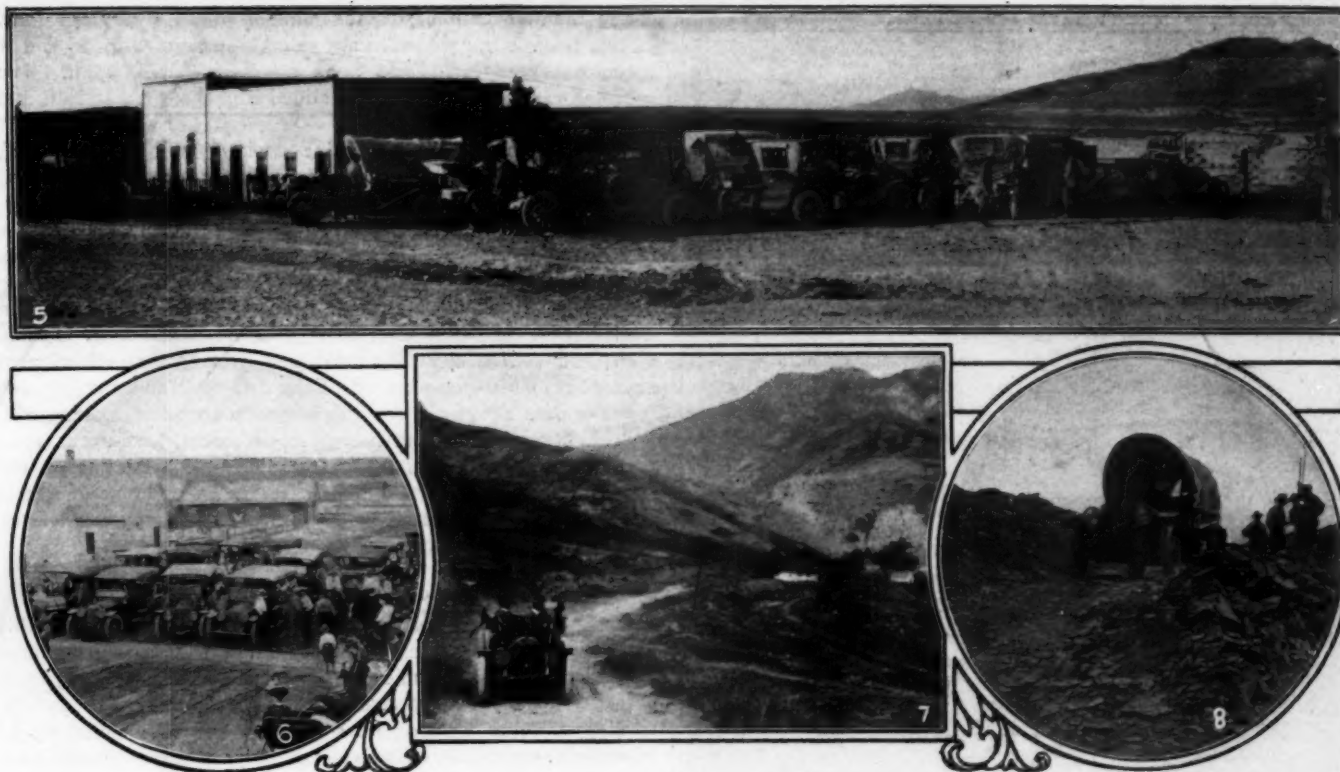
In transcontinental touring the double universal joint is desirable because of the severe twists occasioned by bad road conditions. It was also found that the self-contained rear-axle housing without the truss-rod was also of value as it obviated almost entirely the fear of catching on road obstructions.

Road clearance is another vital point. The cars used in this tour had 10 1-2 inches road clearance. The side thrust on the wheel bearings of the cars was tremendous; therefore, it was necessary that the approved type of bearings be used to carry this strain as well as that of the steering knuckles.

The frame or foundation of the car is most essential. The straight-line, channel construction, with the supporting sub-frame, was probably one of the factors in bringing the cars

RÉSUMÉ OF PREMIER FIRST TRANSCONTINENTAL TOUR

Cars—Twelve Premiers, including one 4 cyl., 30 H.P. 1909 Touring car; three 4 cyl., 40 H.P. 1910 Touring cars; one 4 cyl., 40 H.P. 1910 Roadster; one 6 cyl., 60 H.P. 1910 Touring car; two 4 cyl., 40 H.P. 1911 Touring cars; two 4 cyl., 40 H.P. 1911 Clubman; one 6 cyl., 60 H.P. 1911 Clubman; one commissary truck of the 4 cyl., 40 H.P. type.
 Start—Atlantic City, June 26th.
 Finish—Los Angeles, August 10th.
 Total mileage—4,617.6 miles.
 Elapsed time—45 days.
 Days of rest—16.
 Actual time running—29 days.
 Average mileage for each running day—163 1/7 miles.



5—The Belvidere at Lucin, Utah, where many of the party slept in the cars

6—Julesburg, Col., turned out in force to welcome the tourists

7—Leaving Partez Canyon, Utah, and the last of the Rockies

8—Convicts cutting down grades in the Green River Gorge, Wyo.

safely through, as the frame strain is enormous in a tour of this kind, especially in the rough going of Wyoming, Utah and Nevada.

Another most important thing to be considered in the choice of a car for this particular kind of service is that of brakes. A quick-acting, powerful, equalizing brake is essential. The Premier cars have 526 square inches of effective brake surface. It was often necessary to coast 10 or 15 miles down steep grades, using the brakes continuously. Proper radiation under these circumstances is also essential. On the Ocean-to-Ocean tour no brake parts were removed and no brake linings burned out.

The three-quarter elliptic rear and semi-elliptic front springs gave satisfactory service. Three rear and two front springs were carried in the truck; only four of these were used in the run. Furthermore, the riding qualities of this type is evidenced by the fact that the entire party of ten women, twenty-six men and four children never left the cars while on the road, and at no time was exceptional fatigue shown by any of the tourists.

An easy and certain steering mechanism is essential. At no time during the tour did the travelers experience steering troubles.

The long wheelbase, 140 inches in the 6-60s and 120 and 126

inches in the 4-40s, added greatly to the easy-riding qualities of the car and the comfort of the passengers. The sharpest road turns in the mountains caused no difficulty.

Gasoline Found Everywhere

While the wagons used in most sections of the West are 60-inch tread and the roads consequently the same, the tourists experienced no trouble with the 56 1-2-inch standard tread.

Gasoline capacity is not nearly as important as most automobilists think and as the travelers believed before the start. Gasoline was quite as common as sage brush and was available practically every day of the Ocean-to-Ocean tour, the only exception being on the run from Ogden, Utah, to Montello, Nev., a distance of approximately 150 miles, but over the roughest going on the transcontinental tour. Therefore, a car averaging as much as 12 1-2 miles to the gallon, with a capacity of 20 gallons, is safe from this standpoint, providing the tanks are filled at every available place. After leaving Denver not a moment was lost by lack of gasoline. This is especially remarkable when it is considered that the usual gasoline purchases averaged 150 gallons, and this amount was always available, no matter how small the place. Most of the gasoline of the West is carried in 5-gallon sealed cans. The tank is practically unknown west of Denver; therefore, in some places it must be hauled long distances. These two facts bring the price of gasoline to from 35 to 50 cents a gallon. The lowest price paid for this commodity was 8 cents, and the average price was approximately 20 cents.

Experience in getting lubricating oils was about parallel with that of gasoline. Undoubtedly the reason for this is that practically every ranch of any size in the great West now uses the gas engine in its daily routine.

The net weight of the car without equipment is, for the 4-40, 3,000 pounds, and for the 6-60, 3,600 pounds. The cars with full equipment, which included top, windshield, baggage, extra tires, camping outfit and the equipment shown in the attached table, and including the occupants of the car, averaged 4,800 pounds for the 4-40 and 5,300 pounds for the 6-60.

One of the most important considerations in transcontinental

RÉSUMÉ OF PREMIER FIRST TRANSCONTINENTAL TRIP

Longest day's run—July 2nd, 237 miles.

Shortest day's run—July 5th, 45 miles.

Purpose of tour—Pleasure and in furtherance of transcontinental highway project.

Tourists—Forty men, women and children.

Drivers—Amateur owners of cars, without expert chauffeurs.

Highest altitude—Tie Siding, Wyoming, 7,800 feet.

Lowest altitude—At start, sea level.

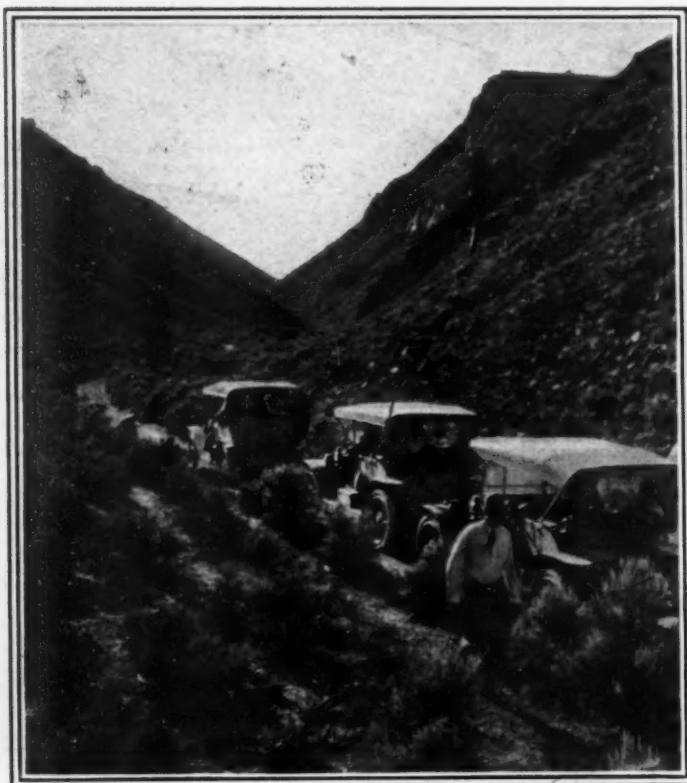
Highest temperature—110.

Lowest temperature—40.

Highest price of gasoline—50 cents.

Lowest price of gasoline—8 cents.

Average miles per gallon of gas—12½.



Traversing New Pass, Nev., through the Reese River range

touring is to keep the weight of the car at the minimum, as it means less strain on the parts and a saving in tires, gasoline and lubrication. In the experience of the tourists it was shown to be impossible to avoid carrying a load of less than 1,600 pounds, and this must be carried whether the small, light car is used or a car of medium weight, like those used. Therefore, it is essential that a car of exceptionally strong construction be used for this kind of touring. This matter should be given careful consideration because it means that the lives of the tourists depend in many instances upon the stability and the reliability of their motor car.

Large Tires Absolute Necessity.

In the consideration of tires the important thing is to get them large. The regular equipment of the 6-60s is 36 by 4 1-2 inches in front and 34 by 5 inches in the rear—on this tour they used the 37 by 5-inch tires in the rear—and on the 4-40s the regular equipment is 36 by 4 1-2 inches all around, while they used 37 by 5 inches all around. On the 1909 and 1910 cars the 4-40s are regularly equipped with 34 by 4-inch tires, but on this tour the 35 by 4 1-2-inch tires all around were used. This, together with the fact that the caravan started with an entirely new equipment, accounts for the small tire replacement found necessary. Four of the 1911 cars went through on their original shoes. On the 1910 cars the average was two shoes to a car. The cars carried six inner tubes as it was found desirable to replace punctured tubes and have damaged tubes vulcanized at week-end stops. This is much preferable to making temporary repairs, or the use of patches, on the road.

The Nobby Tread Morgan & Wright tires were used exclusively in the run. At no time was it necessary to use the canvas strips of which so much has been said in other transcontinental tours. Another great advantage was the ability of those who followed the pilot to find the way. While confetti was thrown from the pilot car, the tourists found the tread of great additional value in following the pacemaker.

Many of the cars were for seven passengers, but experience warns those attempting tours of this kind not to overcrowd the

cars. Limit, by all means, the number of passengers to four. If this is done transcontinental touring will be a comfort, and if moderate speed is insisted upon no fatigue will result. The crowded car means discomfort, added baggage, greater load and is altogether undesirable.

The carrying of an expensive cook, camping outfit, chef, assistant chef and all the other non-essentials are most beautiful to contemplate, but, as a matter of fact, are entirely unnecessary. Probably the most pleasurable part of the planning for such a trip is going into the details in the preparation of this equipment.

These tourists hired the chef of one of the largest clubs in Philadelphia, had him meet them with an assistant at Omaha, Neb., and in that city they purchased over \$300 worth of provisions, among which were all of the essentials and many of the luxuries of the table. They also bought a complete cooking outfit, consisting of two four-hole gasoline stoves, bake-ovens, stew pans and a great lot of other stuff. They loaded this on the truck and cars and started. And after an expenditure of nearly \$2,000 it was found that the entire amount of money was wasted and the equipment unnecessary.

Plenty of Hotel Accommodations

Hotels that could accommodate a party even so large as this were found within an easy day's running. Only in two instances were they seriously handicapped. One of these happenings was occasioned by an unexpected cloudburst which compelled them to stop 22 miles west of Fort Collins at a place called Forks Hotel, the equipment of which was only sufficient to take care of the ladies of the party. The rest slept in a barn on alfalfa beds and found it one of the most pleasant experiences of the tour.

The second time was the run from Ogden to Montello. Misinformation on the part of the natives, who said that the run was 40 miles shorter than it really was, caused the caravan to loiter on



Wet gumbo roads a few miles west of Marengo, Ill.



A mud hole in Nevada, caused by a broken irrigation ditch

the road and it was overtaken by darkness at a place called Lucin, interesting because of the fact that it is the place where the Harri-man cut-off of the Southern Pacific goes to the western bank of the great Salt Lake. Here the ladies were compelled to sleep in two rooms. The legs of the two beds rested in tomato cans filled with water, the idea of this being to keep centipedes and tarantulas from getting there first.

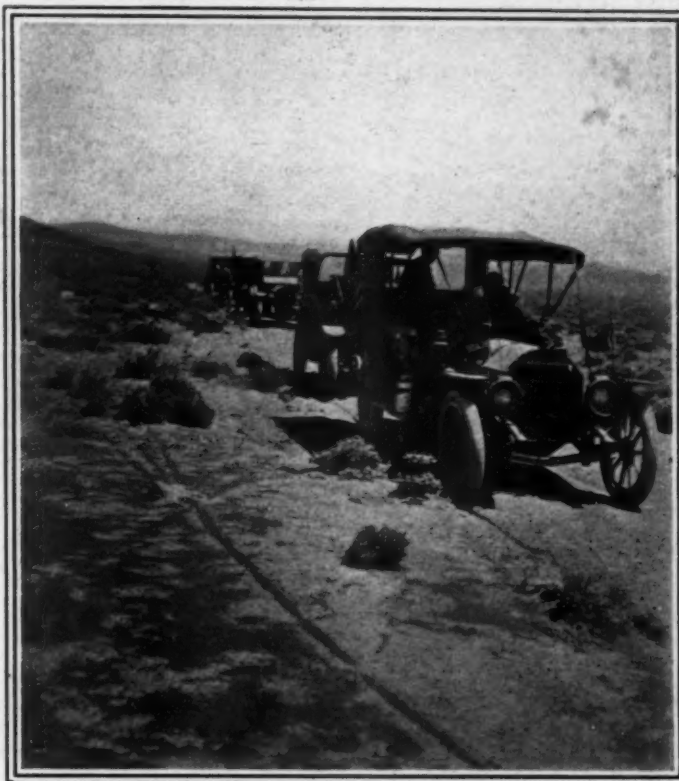
African Water Bags for the Desert

One of the most useful parts of the equipment was the African water bag, a specially tested canvas bag which held 5 gallons of water, but which permitted of sufficient sweating to keep the water cool. It was the rule to fill these bags from water which was free from bacteria and alkali. This made it unnecessary to drink from the water supplies found along the road, and unquestionably saved the party from much illness. They are inexpensive, costing \$1.50 each. This water is also of great value from the mechanical standpoint, as it can be used for filling radiators, if necessary, as there are many points where for from 50 to 75 miles water is unobtainable.

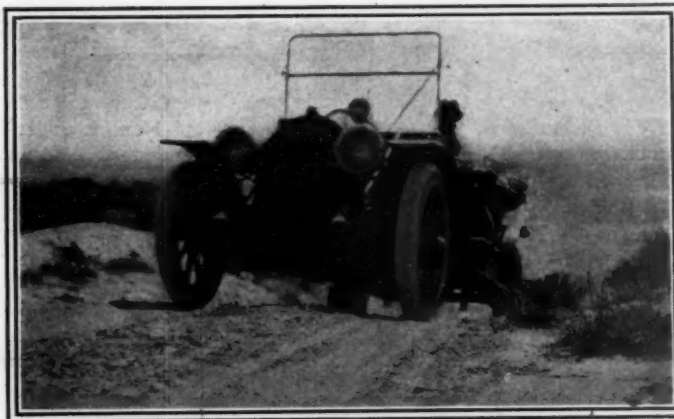
Tourists will find it advantageous to carry in their car a few of the food essentials, such as baked beans, crackers, etc., so that in the event of a breakdown they will not be without food. The precaution, however, is largely for its psychological effect. It does not add much to the weight, and, while in this case unnecessary, it is good insurance.

When the original plans were made it was the unanimous opinion of the touring committee, which consisted of the owners of the cars, that they would dine but twice a day; breakfast at 6:30, start at 7, a run of 150 miles, and dinner at 3 or 4 o'clock upon arrival at destination. The ladies of the party never even permitted a start of this arrangement. On the first day the tourists were guests of Allen Sheldon at Philadelphia. This, of course, supplied the first break in the luncheon plans.

The second day, the ladies of the party unanimously decided



Plowing through the heavy sand 5 miles north of Fallon



Coming out of a deep arroyo near Granger, Wyo.



Snow-slides and thaws are hard on the Sierra-Nevada roads

when 12:30 came that they were going to eat; hence the second break in the luncheon plans and the establishment of a precedent which followed throughout the trip.

The first luncheon was at Columbia, a town in Pennsylvania on the banks of the Susquehanna, part way between Harrisburg and Baltimore. The great prosperity resulting from the unexpected arrival of the forty people of the party completely overwhelmed the proprietor and his wife. The result was over 2 hours lost. This great loss of time followed practically on every occasion when they stopped at hotels or restaurants for luncheon.

As this was too serious to be continued, a solution of the luncheon problem became pressing. It was finally solved by the use of box lunches from the hotels forming the night controls. If they could not provide them, a restaurant or quick-lunch counter met the demands. In the course of the tour luncheons were prepared by all nationalities; the best beyond question was the Japanese of the Far West. Luncheons usually consisted of two sandwiches, two hard-boiled eggs—which the coyotes ate—pickles, olives, fruit, pepper and salt, and sometimes cake.

Picnic Lunches the Rule at Noon

It was the custom of the pilot, Ray McNamara, after a little over one-half the distance of the contemplated day's run to find, when possible, some shady, beautiful roadside glen where the entire party lunched together. When the plains of Colorado and the deserts of Wyoming and Nevada were reached this problem became serious. On a few of the days it was possible to find an oasis in the desert; where this was impossible, which it usually was, they lunched in the shades of the tops. All things considered, the mid-day luncheons afforded some of the most pleasant hours of the trip. Following is a list of the camping equipment bought at Omaha and the bill:

10 7x7 Wall Tent, 8 oz. double filling, poles and stakes.....	\$72.50
3 14x 14 Wall Tent, 8 oz. double filling, poles and stakes.....	56.61
1 Fly, 16x20', 8 oz., double filling, poles and stakes.....	20.00
2 Toilet Tents, 8 oz., double filling, poles and stakes.....	18.00
35 Gray Blankets, at \$3.00.....	105.00
35 Folding Cots, at \$2.00.....	70.00
2 4-Burner Gasoline Stoves.....	30.00
4 Ovens	12.00
	<hr/>
	\$384.11



Only once was it found necessary to take the tracks

The complete cost of the camping equipment is shown in the bills from the supply house.

The highest grade United States Standard 8-ounce stuff was used in the tents. The 7 by 7-foot sizes were used by the married couples and were found to be sufficiently roomy for every purpose. The 14 by 14-foot sizes were used for the single men and for those who were touring without their wives. They comfortably held six, and with a little crowding eight could be accommodated. One of the 14 by 14-foot tents was designed as a cooking tent, one-half to be occupied for this purpose, while the other half provided accommodations for the chef and his assistant. A 20 by 20 fly was stretched in front of this tent and was used as a dining tent by the tourists.

Two toilet tents completed the tent equipment.

The folding cots weigh from 10 to 12 pounds and occupy a space 3 feet long and 6 inches in diameter.

The large poles, etc., were carried in the truck. The smaller tents were slung on the left-hand running board of the car so as to balance the weight of the extra tires. The poles were securely strapped to the top irons. This blocked the tonneau door on the left side, but left the foredoors free of access. The tents themselves rested on the running board and were securely strapped to the rear fenders.

In this connection, straps are an important part in transcontinental equipment. They are infinitely superior to rope, wire or any other fasteners.

The entire camping outfit, including cots and tents, weighed approximately, in the smaller sizes, 100 pounds. This included two cots, wash basin, cup, soup bowl, plate, knife and fork, spoons, blankets, tent poles, etc. The dishes were made of porcelain-lined steel and were tightly nested together, thereby taking little room.

United States Army blankets are ideal. The best way to lay camp is to alternate the cars and tents, using the spokes of the wheels instead of pegs. This is especially convenient as the wearing apparel may be kept in the car and is always convenient to the campers.

Roads Were Better Than Expected

The road conditions which are met on a transcontinental tour were found by the Premier tourists, much to their surprise, to be infinitely better than had been expected. When the tour was first proposed the belief was unanimous that it would have some of the roughest kind of going and that in some places it would be practically impossible to get through. It was with this in view and the possibility of injury to the tourists that arrangements were made with the Union Pacific trains to signal or flag trains at any time or place while running parallel with the railroad. This was done so that in the event the running became too strenuous for the ladies, they could get relief and comfort in the railroad trains, while the men of the party continued on the road.



Bad going around the north end of the Great Salt Lake

Between Atlantic City and Omaha there was little to fear; as the tourists were fairly well acquainted with the roads from Atlantic City to the beginning of the National highway at Cumberland, Md., and from there to Indianapolis, from Indianapolis to Chicago, and from Chicago to Davenport. They had read so much relative to the famous "River-to-River" road in Iowa and its wonderful elastic gumbo surface that they looked forward with great pleasure to the going from Davenport to Omaha, the eastern and western terminals of this great road. From Nebraska they were somewhat fearful, and from Denver to the West the road conditions were absolutely unknown, although diligent efforts had been made by the secretary of the tourists to get reliable road information.

Transcontinental Tours Practicable

When they reached Denver they were assured by those in the automobile business that it was impossible to proceed further, and that not a car had successfully traveled through from the East to the West or from the West to the East between Denver and the Pacific Ocean.

It was to prove the error of this that the amateur motorists from Philadelphia, New York, Washington and Newark undertook the run. The information of the past is erroneous and an imposition on American motorists. There is no reason why any road conditions that obtain should prevent any group of automobile owners operating more than one car from making a tour across the country. The going is rough in places, but they are the exceptions rather than the rule, and while a sturdy car is necessary, and in some places a quick eye and steady nerve are essential, any driver of reasonable experience can get through in happiness, comfort and safety.

It is no exaggeration to say that the worst conditions in the roads were found in Pennsylvania. No road conditions of the West, with the possible exception of the Bitter Creek District, the abandoned trails around the head of Great Salt Lake, and the heavy roads of the Carson Sink country, were worse than those of Pennsylvania.

Yet, notwithstanding this, the government officials of these states, at the banquets which were attended by the tourists, said that they were then working the unlimited road materials, which are always at hand in these states, by state prisoners or convicts.

The use of these men supplies the road commissioners with manual labor and it would not surprise anyone, even without national aid, if within the next 4 or 5 years, a highway will be built straight across these states and joining the wonderful roads of California with the highways of Nebraska, and a comparatively small amount of under-draining along the mountain sides, with the building of bridges over the arroyos and mountain washes, will make the road conditions compare favorably with those in the East.

The plains of Colorado are particularly good. The method of road building there is simple. When the centers become too



A high center near Bitter Creek, Wyo.

Laurel Ridge, near Unlontown, Pa.

Hilly roads near Great Salt Lake

high for safety, they straddle the old road and make a new trail. Of course, it must be realized that the prairie dog, gopher and badger holes are a constant menace, as these animals will dig a hole in the center of the road over night. Nothing that the government can do now, or in the future, with the exception of the extinction of the animals, will prevent the danger. The only remedy for this condition would be the rock grading of the entire road, which even for the national government would be a formidable undertaking and an expense which, in the opinion of tourists, would be unnecessary. These holes are the spring breakers, axle twistors and frame wreckers.

In addition to the specifications shown in the accompanying table, the caravan was equipped as follows: The cooling system in all the cars was by circulating water. All the cars had semi-elliptic springs in front and three-quarter-elliptics in the rear.

The steering gear was of the irreversible worm and full gear type. All the cars were of standard 56 1-2-inch tread. The gasoline capacity of all the cars except number 4 was 20 gallons. Number 4 car had a tank for 36 gallons. Multiple disk clutches with shaft cork inserts; semi-floating steel housings without truss rods were used in the rear axle construction. The front axles of all the cars were of the Elliot or LeMoyné types of I beams. The frames were of pressed steel. All the cars carried tops; all were equipped with gas lamps except number 12 which had Remy electric lights. Weston shock absorbers were used on all cars, front and rear. The six-cylinder cars had Stromberg carbureters and the others were fitted with Scheblers. Weed chains were carried on all cars and mud hooks on several. A block and tackle was stowed in number 12 car. The mileage was 4,761.

SPECIFICATIONS AND EQUIPMENT OF THE CARS THAT PARTICIPATED IN THE TRANSCONTINENTAL TOUR

Type	Motor	Ignition	Lubrication	Wheel-base	Tires	Bodies	Speedometer	Extra Tire Equipment	Total Miles Traveled By Cars Shown on Speedometer
Premier 1910.	4-40	Bosch make-and-break	Splash mechanical and auxiliary tank and pump	120"	G & I QD 34x4" front... M & W Nobby tread... 35x4 1/2" rear...	Seven-passenger touring...	Jones...	One 34x4" G & I... One 35x4 1/2" M & W... Six M & W Tubes...	17,867.1
Premier 1911.	6-60	Bosch high tension dual system	Circulating oiling system	140"	G & I QD 36x4 1/2" front... M & W Nobby tread... 36x5" rear...	Four-passenger Clubman	Jones...	One 36x4 1/2" G & I... One 36x5" M & W... Six M & W tubes...	5,433
Premier 1910.	4-40	Bosch make-and-break	Splash mechanical and auxiliary tank and pump	120"	G & I QD 35x4 1/2" front... M & W Nobby tread... 35x4 1/2" rear...	Five-passenger touring	Jones...	One 35x4 1/2" G & I... One 35x4 1/2" M & W... Six M & W tubes...	12,873.2
Premier 1910.	4-40	Bosch make-and-break	Splash mechanical and auxiliary tank and pump	120"	G & I QD 34x4" front... M & W Nobby tread... 34x4" rear...	Two-passenger roadster	Warner...	One 34x4" G & I... One 34x4" M & W... Six M & W tubes...	19,761.1
Premier 1909.	4-30	Bosch make-and-break	Force feed mechanical oiler	120"	G & I QD 34x4" front... M & W Nobby tread... 35x4 1/2" rear...	Five-passenger touring	Warner...	One 34x4" G & I... One 35x4 1/2" M & W... Six M & W tubes...	18,840
Premier 1911.	4-40	Bosch make-and-break	Circulating oiling system	126"	G & I QD 36x4 1/2" front... M & W Nobby tread... 37x5" rear...	Four-passenger Clubman	Jones...	One 36x4 1/2" G & I... One 37x5" M & W... Six M & W tubes...	9,601.5
Premier 1911.	4-40	Bosch high tension dual system. Rajah spark plugs	Circulating oiling system	126"	G & I QD 36x4 1/2" front... M & W Nobby tread... 37x5" rear...	Five-passenger touring	Jones...	One 36x4 1/2" G & I... One 37x5" M & W... Six M & W Tubes...	6,902
Premier 1911.	4-40	Bosch high tension dual system. Rajah spark plugs	Circulating oiling system	126"	G & I QD 36x4 1/2" front... M & W Nobby tread... 37x5" rear...	Four-passenger clubman	Stewart...	One 36x4 1/2" G & I... One 37x5" M & W... Four M & W tubes...	6,910.3
Premier 1911.	4-40	Bosch high tension dual system. Rajah spark plugs	Circulating oiling system	126"	G & I QD 36x4 1/2" front... M & W Nobby tread... 37x5" rear...	Five-passenger touring	Jones...	One 36x4 1/2" G & I... One 37x5" M & W... Six M & W tubes...	6,507.6
Premier 1910.	4-40	Bosch make-and-break	Splash mechanical and auxiliary tank and pump	120"	G & I QD 35x4 1/2" front... M & W Nobby tread... 35x4 1/2" rear...	Five-passenger touring	Stewart...	One 35x4 1/2" G & I... One 35x4 1/2" M & W... Six M & W tubes...	16,001
Premier 1910.	6-60	Bosch make-and-break	Return oil feed and auxiliary tank and pump	140"	G & I QD 36x4 1/2" front... M & W Nobby tread... 36x5" rear...	Seven-passenger touring	Jones...	One 36x4 1/2" G & I... One 36x5" M & W...	57,820.5
Premier 1911.	4-40	Remy high tension Rajah spark plugs	Circulating oiling system	126"	G & I QD 36x4 1/2" front... M & W Nobby tread... 37x5" rear...	Pairie schooner	Stewart...	One 36x4 1/2" G & I... One 37x5" M & W... Six M & W tubes...	15,010.1

In the Legal Field

Jonz Makers in Receiver's Hands— Cameron Receiver Appointed

Richmond Iron Works, Makers of The Virginian, File Petition in Bankruptcy

LOUISVILLE, KY., Feb. 12—On petition of Chester C. Jones, Carey C. Jones and Ellsworth Jones, stockholders of the American Automobile Manufacturing Company, of New Albany, Ind., which makes the Jonz car, Judge W. C. Utz, of the Floyd Circuit Court appointed the New Albany Trust Company receiver of the American Company, Friday.

It is stated by the petitioners that the assets of the company amount to \$200,000, while the liabilities do not exceed \$49,000, but it is declared that the concern is suffering from a lack of working capital. Of the liabilities, it is stated that there are on open accounts \$9,000 and notes \$16,000. The plant, it is stated, is bonded for \$24,000. Some time ago an advertising campaign was conducted for the sale of stock in the company, and as a result there was a wide sale of shares to small stockholders, who are scattered in practically every state in the United States, it is said. It is stated there are 9,000 stockholders, some of whom have filed suit against the company. The intervention of the court is necessary to the protection of other stockholders, it is declared, and the court has been asked to appoint a receiver to raise additional funds and keep the plant in operation.

According to L. A. Boli, the vice-president and general manager of the concern, the petition is friendly, and filed for the purpose of bringing about an adjudication of differences between stockholders, and to protect paid-up stockholders against those who subscribed to stock but failed to pay. He said the company will be reorganized as early as possible by the stockholders who have paid up their stock subscriptions, with additional capital, and that the plant will continue on a more extensive scale. About a year ago, the American Automobile Manufacturing Company purchased the old New Albany Woolen Mill plant, which included 6 acres of ground and half a dozen buildings. The structures were equipped for the manufacture of the Jonz car.

Ask for Time in Suit Against Lozier

Application for an extension of time in which to file the bill of particulars demanded by Hugh Herndon, attorney for H. A. Lozier and the Lozier Motor Company, has been made by attorneys representing the plaintiffs in the suits of Williams & Rhinock against Mr. Lozier as an individual and the automobile company.

The significance of the action lies in the fact that it foreshadows the course that will be pursued by the plaintiffs and that the case will be tried in the Supreme Court rather than on a law point in the Court of Appeals.

F. R. Williams and Joseph L. Rhinock sued the Lozier company to enforce an alleged contract to sell or for damages sufficient to cover the profits lost by reason of the failure of the company to comply with the terms of the alleged contract.

Mr. Herndon moved the court to require the plaintiffs to file a bill of particulars, showing the alleged contract and all the facts in their possession bearing upon it vitally.

The plaintiffs had an opportunity to appeal from the order of court, but instead they applied for further time to compile the bill of particulars, showing that the case will be heard by the Supreme Court.

The amended complaint, containing the facts asked for by Mr. Herndon, is due next week.

Perley Named as Cameron Receiver

As predicted in THE AUTOMOBILE, there was a lively time at the meeting of the creditors of the Cameron Motor Car Company at Salem, Mass., last week, and at the end of the engagement it was found that the New York creditors, chief among whom is the Eismann Magneto Company, and allied claimants, represented by Attorney Herman Steinberg, held the whip hand despite the fact that they were in minority both as to numbers and amounts involved.

They succeeded in having E. Howard Perley selected as receiver and duly qualified.

The unusual feature of the case was that the attorney, said to be the representative of the involved company, appeared before the referee armed with a majority of the outstanding claims against the company and moved for the selection of another course of action.

The referee declined to entertain this motion as it was shown that the attorney holding the supposedly hostile claims against the company was identified to some extent with the company.

The proposition outlined by the company for a composition of its debts on a basis of 10 per cent. will be heard February 24.

Small Truck Agency in Bankruptcy

The Motors Engineering and Sales Company, of New York, a company organized last year to handle the Kelly truck, was thrown into involuntary bankruptcy Tuesday when Chester Griswold and several others identified with the company filed claims aggregating \$11,875. Mr. Griswold and his associates are officers of the concern, which owes about \$14,000.

The cause of the action developed after one of the other creditors obtained default judgment against the company for \$1,000, and its purpose, according to Mayer & Gilbert, attorneys, was to forestall summary action prejudicial to all the creditors. No receiver will be appointed.

The Virginian Makers Bankrupt

RICHMOND, VA., Feb. 14—The Richmond Iron Works Corporation filed a voluntary petition in bankruptcy in the United States District Court yesterday and Judge Edmund Waddill, Jr., appointed M. H. D. Eichelberger, receiver. The debts are placed at \$67,577.96 and assets at \$111,351.90. The concern owns real estate valued at \$75,000. The creditors are mostly local firms and individuals and are protected. The Richmond Iron Works Corporation has been manufacturing The Virginian car. Receiver Eichelberger qualified by giving a \$10,000 bond.

Hupps May Use Their Own Name

Under the decree entered by Judge A. J. Murphy, of the Wayne County (Mich.) Circuit Court in the matter of the Hupp Motor Car Company against the Hupp Corporation, the right to use their individual names in the manufacture of gasoline automobiles is granted to R. C. and Louis G. Hupp, or as a partnership firm name the use is not barred.

The settlement of the financial questions involved the payment of about \$50,000 by the Hupp Motor Car Company to R. C. Hupp, as a condition precedent to entering the decree.

Carlson vs. Maxwell Case This Week

The suit of the Carlson Motor & Truck Company against the Maxwell-Briscoe Motor Company, outlined exclusively in THE AUTOMOBILE last week, will be heard finally the latter part of this week before the United States Circuit Court of Appeals. The case has been on the call calendar for several weeks, but has been postponed from time to time at the request of the attorneys.

Holley Denies Infringement

DETROIT, Feb. 12—Holley Brothers Company, Detroit, Mich., manufacturers of the Holley carbureters, desire it to be known that the patent litigation in which they have been involved by Adolph Saurer pertains only to an alleged infringement of the Saurer double-jet carbureter patent.

Carbureters of the double-jet type have not been built by Holley Brothers Company since early in 1911. The present Holley model possesses only a single jet or spray nozzle, and, according to the Holley company, is in no single particular similar to the double-jet type against which Saurer claims infringement.

Creditors Go After Washington

WASHINGTON, D. C., Feb. 13—Following the appointment of the receivers of the Carter Motor Car Corporation an involuntary petition in bankruptcy has been filed against the corporation by the Champion Spark Plug Company, James Darnell and the Empire Auto Top & Body Company, whose aggregate claims amount to \$1,400.

The bankruptcy court has issued a rule, returnable February 20, calling on the alleged bankrupt to show cause why the corporation should not be declared a bankrupt.

Klaxon-Ever-Ready Date Set

Tuesday, February 20, has been set as the day for presenting arguments before the United States Circuit Court of Appeals in the suit of the Lovell-McConnell Manufacturing Company against the American Ever-Ready Company, involving the question of appeal from the order of the lower court in granting a temporary injunction to the complaining company, pending final decision of the case.

The defendants wish to have the injunction suspended until final adjudication, and the complainants take the other view.

Jersey Solons Pass Chain Bill

Chains can be used in New Jersey on automobile tires as soon as Governor Wilson signs the bill passed Tuesday by the lower house. The bill already has passed the Senate. It provides that non-skid chains may be used where necessary to save life, a sufficiently broad condition to include pretty general use where the roads are slippery.

The reciprocity measure with no reference to power of attorney also had easy sailing in the lower house, passing by a vote of 44 to 13. The measure calls for 15 days a year of touring privilege to non-residents, which is practically the length of time asked for by the various automobile organizations.

M. C. A. and A. A. A. Talk Contract

Gathered at the Lotos Club on Tuesday afternoon practically every factor in the question of official administration of automobile contests was represented. The Manufacturers' Contest Association, American Automobile Association and a number of individuals associated with one or the other phase of the matter attended. The future of automobile contests was up for consideration in detail prior to the execution of the contract that will shape the ends of sport in the immediate future.

Both branches agreed that the contract should be so framed as to bring about the greatest measure of good to the industry that may be derived from contests, and naturally the discussion centered mostly upon who should be the man to head the contest-governing body.

The availability and qualifications of a number of tentative candidates were considered and a definite announcement of the execution of the contract and the selection of a chairman will probably be made next week.

Garden to Stand 1 Year

New Owners Decide to Run It as an Investment for That Time

F. & D. Company Pays \$3,500,000 for the Property. Which Will Be Improved

FOR at least 1 year longer, Madison Square Garden will be in existence in practically the same shape as it has been ever since the birth of the automobile industry. Transfer of the property was accomplished Wednesday when deeds calling for \$3,500,000 were signed by the Madison Square Garden Company, turning over the property to the F. & D. Company, of which G. Louis Boissevain is president.

The New York Life Insurance Company supplied \$2,300,000 of the purchase price, taking back a first mortgage for that amount.

Leslie R. Palmer, secretary of the F. & D. Company, said that the project would be continued for at least 1 year under practically the same conditions that have obtained in the past. He explained that after that time the future of the Garden would depend upon the number and size of the leases obtained by the operating company.

He declared that if the business of the Garden could be arranged on a satisfactory basis the building would be continued in its present form indefinitely.

In order to prove a satisfactory investment the building will have to develop an income of practically \$1,000 a day and in order to earn this amount, there will have to be at least 40 weeks of business during each year.

Several of the tentative leases that have been spoken of in this connection are new, and, if they can be added to the present volume of business, they will go a long way toward making for success in the project.

Under the announced arrangements, the Arena building next to the new Grand Central Palace will not be rushed to completion and it may be another year before the proposed building is considered seriously.

Mr. Palmer stated that a special effort would be made to secure sufficient business to make the present use of the building possible for many years.

Mr. Boissevain still favors the original plan of improving the lot with an office building twenty-five stories high, but is entirely in accord with his associates as to continuing the present status for at least a year.

The original plan contemplated dividing the building into four parts, but the intention now is to improve only the Madison avenue frontage and to leave the show room untouched.

United States Army Testing Trucks

WASHINGTON, D. C., Feb. 13—Somewhere between Washington and Richmond three motor trucks—a White, Sampson and Autocar—are fighting the snow and ice-covered roads on the first long-distance army motor truck test. The caravan is under the observation of Capt. Alexander E. Williams, Nineteenth Infantry, who, while on duty in the Quartermaster General's Department as a detailed officer, was engaged in the development and encouragement of designs of motor trucks for military use. The White and Sampson trucks are owned by the government.

Captain Williams expects to complete the trip within 4 weeks, but that depends entirely on the state of the roads. The route extends from Washington to Fort Benjamin Harrison, Ind., by way of Richmond, Va.; Raleigh and Charlotte, N. C.; Atlanta, Ga.; Chattanooga and Nashville, Tenn., and Louisville, Ky. The tests will be continued during the coming summer.

U. S. Motors Passes Dividend

Deemed Advisable to Use Money to Finance Business of the Company

ANNOUNCEMENT was made last Thursday that the United States Motor Company had decided to pass its quarterly dividend due this month. The reason given for this action is that it was deemed advisable to withhold the dividend, which amounts to approximately \$200,000, and to use the money for financing the business of the company.

In a partial report to the stockholders President Benjamin Briscoe states that the company is in flourishing condition and that during the past 5 months, known as the dull season in the automobile business, the company has marketed 6,512 cars, against 4,483 in the corresponding period a year ago. This expansion of business and the prospective rush of spring trade decided the company to conservative action.

The passing of the dividend does not mean that the stockholders will lose the amount for the preferred issue of the company carries cumulative dividends and will have to be paid eventually before any division of profits can be set off to the common shares.

Mr. Briscoe states that certain administrative economies have been installed and perfected so that a total of between \$300,000 and \$400,000 has been saved in the yearly expense account.

Chalfant Leaves Thomas Company

On February 15 E. P. Chalfant will retire from active participation in the affairs of the E. R. Thomas Motor Car Company, to become associated with Harrison Williams, of 60 Broadway, N. Y., in the financing and supervision of public utility companies. In his new field of endeavor he will assume, among other responsibilities, those of president, Springfield (Mo.) Railway & Light Company, president, Sharon & Newcastle (Pa.) Railway Company, and director, Youngstown-Sharon Railway & Light Company. Mr. Chalfant in the space of one year since he assumed the direction of affairs of the Thomas Company has succeeded in placing that concern on a firm financial foundation.

Maxwell Draughtsman Starts Company

Capitalized at \$1,000,000, the Steinbock Engineering Company has been incorporated at Trenton, N. J., to manufacture, among other things, a line of automobiles. The corporation takes its name from H. E. Steinbock, who was chief draughtsman of the Maxwell-Briscoe Motor Company until just before the end of last year. After that time Mr. Steinbock was engaged at the headquarters of the United States Motor Company for a short time. He will be vice-president of the new concern.

The president is W. J. Forham and the secretary-treasurer of the company is F. B. Knowlton. While no definite announcement has been made, it is stated that the factory will be located at or near Peekskill, N. Y., and the company states that an effort will be made to have its product on the market by July 4.

Canada Has Gas-Electric Project

TORONTO, CAN., Feb. 12—A new company has been organized at St. Thomas, Ont., under the style of Gasoelectric Motors, Ltd., with a capital of \$1,000,000. The company proposes manufacturing motor cars driven by hub motors, power for which is generated on the machine from a gasoline engine. The provisional directors are: E. H. Thomas, president; B. F. Honsinger, vice-president; H. F. Slater, Toronto, secretary and treasurer; H. C. Thomas, C. M. Preston, F. McKitching, St. Thomas, and J. F. Roland, Toronto.

Cold Retards Building Plans

Detroit Claims Two New Entrants to the Commercial Car Field

DETROIT, MICH., Feb. 12—While 1911 was a great building year for Detroit, thanks to the automobile industry, 1912 is going to establish another new record according to present indications and for the same reason. The severe weather that has prevailed for many weeks has tended, of course, to retard actual building operations, but there will be a grand rush of excavators, masons and carpenters with the first sign of spring. Architects are loaded down with new work, and much of it has to do with the automobile industry. Never before, they say, has there been such a call for garages, both public and private, so early in the year, which would seem to augur well for the selling end of the motor industry.

In some instances the need of increased facilities has been so pressing that the biting cold has not been permitted to interfere. The Foster Motor Sales Company, which started business only last fall in a new building out Woodward avenue, has completed the excavation for a large addition and work on the superstructure will be rushed. This concern handles the Thomas and Cutting cars and the Mais heavy-duty truck. Further down the avenue two or three garages are under way, and rapid progress is being made on the new home of the Firestone Tire Company at Woodward and Canfield avenues. Several other buildings devoted to automobile use are under construction.

Real estate dealers who make a specialty of factory sites report an active inquiry from motor car interests looking for locations, which indicates that the hub is to have a number of recruits this year.

New entrants in the local commercial car field are the Cygnet Motor Company and the Motor Truck Body Company. The former is now in the process of organization and it plans to manufacture a light delivery and pleasure car to sell for about \$850. The promoters are not ready to disclose their whole hand yet, but the new car, it is promised, will be quite a departure from the conventional design.

The Motor Truck Body Company is already established in a plant at 320 and 322 Franklin street and is beginning to fill orders for which it has contracts. It will manufacture high-class bodies for motor trucks and light delivery cars. The officers of the company were formerly in the body department of the Packard Motor Car Company. Fred Proctor is president; E. T. Haugstefter, secretary and treasurer, and Harry A. Carrier, manufacturing manager.

The Church-Field Motor Company, the latest addition to the local electric field, has taken over the lease of the Woods Electric garage at 344-346 Jefferson avenue, and also purchased the good will of the business. The company will establish a local sales agency here and will also conduct a general electric garage business, taking care of all kinds of electric vehicles.

The Read Auto Company has taken the agency of the Metz car for the state of Michigan and has opened salesrooms at 541 Woodward avenue. The members of the firm are R. J. Read and J. E. Beatty, both of whom are experienced automobile men. Mr. Beattie has been with the Warren Motor Car Company and the Herreshoff Motor Car Company.

Cobe Again Heads Chicago A. C.

CHICAGO, Feb. 9—Ira M. Cobe was elected to the presidency of the Chicago Automobile Club for the seventh time at the annual meeting yesterday. The rest of the ticket which went in without opposition was made up as follows: First vice-president, T. J. Hyman; second vice-president, J. T. Brown; directors for 3 years, T. J. Hay and S. M. Rogers; for 2 years, M. A. Ross and W. S. Bogle; for 1 year, Charles Herendeen and F. A. Yard.

Hoosiers After Edwards Plant

Plans in Progress to Dispose of \$1,000,000 of Stock in Indianapolis

INDIANAPOLIS, IND., Feb. 12—The factory of the Edwards Motor Car Company, organized by C. G. Stoddard and F. E. Edwards, will probably be located in this city. An option on the fourth American license to manufacture the Knight valve-sleeve motor is held by Stoddard and Edwards, who were formerly prominent in the United States Motors Company, and the cars to be made by the new concern will use the Knight motor exclusively.

Stoddard and Edwards met a number of Indianapolis capitalists at the Columbia Club, in Indianapolis, a few days ago and plans were made to dispose of \$1,000,000 worth of stock. Meetings were subsequently held by Indianapolis men at the Commercial Club, Carl G. Fisher presiding.

In an effort to dispose of the stock, the different commercial organizations have appointed a joint committee to make every effort to carry the project to a satisfactory conclusion. It is estimated the new factory will employ about 1,000 men.

Fisher and James A. Allison, who is identified with him in the Prest-O-Lite Company, have agreed to furnish a site of 20 acres for the new factory. This site is near the belt railway tracks, with excellent shipping facilities.

Body Builders Expand Company

RACINE, WIS., Feb. 12—At the annual meeting of stockholders of the Racine Manufacturing Company, Racine, Wis., one of the largest manufacturers of wood and metal motor car bodies in America, it was decided to increase the number of directors from three to seven in order to extend the supervision and responsibility and have charge of the policy of expansion which is made necessary by the tremendous growth of the business.

The company's plant was swept away by fire on December 12, 1910. The capitalization was then increased from \$400,000 to \$800,000 and a new plant established. The size of this will be considerably increased during the present year by additional buildings, which will make it the largest works of the kind in this country. The company builds bodies for some of the highest-priced as well as the cheapest cars.

New Bill Favors Gas Company

INDIANAPOLIS, Feb. 12—It is quite likely that an ordinance forbidding the manufacture of explosives inside the city limits will be amended by the Indianapolis City Council to permit the Prest-O-Lite Company to move its gas manufacturing plant inside of city and that the company will not carry out the intention announced some time ago of moving to another city.

An ordinance has been introduced in the council permitting the location of such plants not closer than 200 feet to any other building or public highway.

Road to Milwaukee Its Mission

MILWAUKEE, Feb. 12—The Chicago-Milwaukee Road Association is effecting a permanent organization, the main object of which will be to repair and improve at least one principal highway between the two cities and keep it in good repair winter and summer, not alone for pleasure car traffic, but for commercial vehicles and horse-drawn vehicles. The project is backed by the Milwaukee Automobile Club and Milwaukee Citizens' Business League from the Milwaukee end, and the Chicago Motor Club from the Chicago end.

Empire to be Reorganized

Cecil E. Gibson, of Fisher-Gibson Company, to be President

INDIANAPOLIS, Feb. 12—Formal announcement will be made very soon of a reorganization of the Empire Motor Car Company, of Indianapolis, which has not been manufacturing cars for some little time, the plant in this city at present being devoted to the manufacture of the Prest-O-Lite starter. The company was organized by Carl G. Fisher and James A. Allison some years ago, and who now desire to withdraw from the manufacturing end of the motor car business.

In the reorganization Cecil E. Gibson, of the Fisher-Gibson Company, will take a large block of stock and will be president of the concern. B. W. Twyman, of Columbus, O., will be another stockholder and will become one of the directors. Twyman was formerly identified with Indianapolis motor car concerns, but 2 years ago took a position with the Studebaker interests at Detroit.

When the company is reorganized, a new factory will be obtained, as the old Empire plant, in all probability, will continue to be used for manufacturing the self-starter.

Russell Company to Increase Capital

TORONTO, CAN., Feb. 12—On Friday last at a special meeting of the shareholders of the Russell Motor Car Company, Limited, it was announced that the directors would ask for the ratification of a proposal to increase the capital stock from \$1,600,000 to \$2,000,000. The new issue would be of the 7 per cent. cumulative preferred convertible shares. The present capital is equally divided between preferred and common, and holders are to have the privilege of subscribing for the new stock at par in the proportion of one new share for each holding of four shares of either common or preferred. The former was quoted on Friday at 103 bid, and the preferred at 106 bid. In their notice to the shareholders, the directors make the important announcement that they have decided to enter the commercial vehicle field, adding the manufacture of delivery motors and motor trucks to their present line of automobiles. This will mean further additions to what is already the largest automobile manufacturing plant in Canada. The shareholders' meeting is called for Monday, Feb. 19.

Helping Washington Garage Men

WASHINGTON, D. C., Feb. 10—Recommendations made by the building inspector and the assistant engineer commissioner have prompted the District Commissioners to amend the building regulations so as to remove many present difficulties in the way of the establishment of public garages in alleys. The present building regulations require that two-thirds of the owners of business property within a radius of 90 feet of the proposed garage shall be counted as consenting.

Under the amended regulations all property, within the necessary radius, occupied and used as a private stable or private garage and all alley lots not occupied by alley dwellings and on which under the law no alley dwellings could be built, shall be counted as consenting.

Cincinnati to Keep Tab on Automobiles

The city fathers of Cincinnati have decided to put an end to the wasteful use of city-owned automobiles by city officials, and a system has been devised for recording the individuals using city automobiles, the time during which they use them and the routes over which they go.



One of the side aisles of the Coliseum, showing the Reo, Kelly and Pope-Hartford exhibits

Lessons Drawn From Commercial Shows

Comparisons of Delivery Expense as Between Motor Installation and Horse-Drawn Equipment

EACH year sees more motor vehicles in commercial service and each year the industry is placed on a more substantial and business-like basis. The average business man and commercial house today is familiar with the results to be gained from the use of commercial cars, and for this reason, the industry has grown by leaps and bounds. In every enterprise where a large volume of trucking or delivery service is carried on, the use of motor trucks has been taken up, or, if it has not, it is being very seriously considered because all thinking men are becoming thoroughly awake to the saving which is to be effected by the systematic use of some form of gasoline or electric truck or delivery car installation.

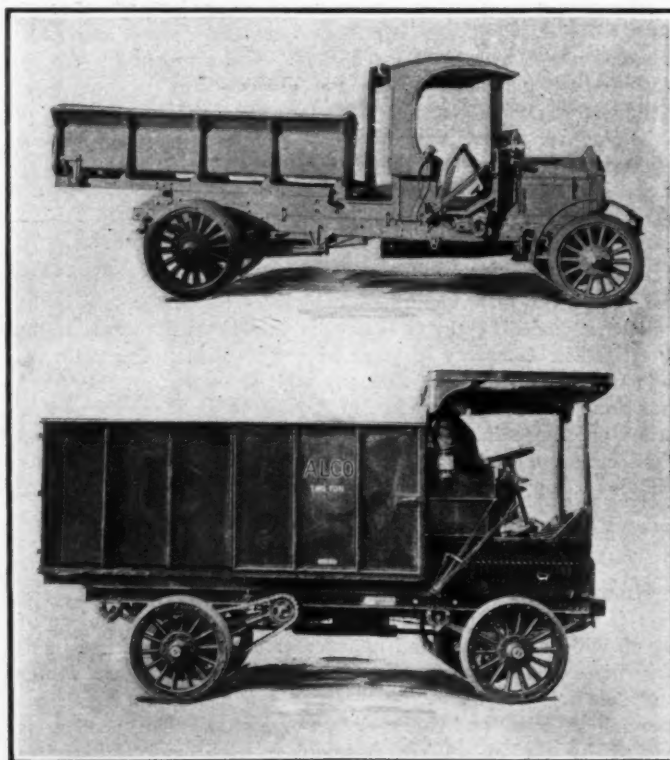
The saving of the commercial car over the horse has been so thoroughly demonstrated in a number of cases that it seems hardly to be longer a question in point. In the matter of mileage alone, there is really no comparison, for whereas a team of horses will be doing well to make 15 miles a day, according to exhaustive figures compiled by the Brooklyn Rapid Transit Company in connection with its horse-cars, the truck will average 45 miles a day very easily.

In nearly every line of business there would be a saving to the merchant, no matter how small his delivery system, by the installing of motor vehicles. Of course, this installation involves the systematic handling of deliveries, the checking up and record-keeping of every phase of the truck's or the delivery car's performance, and the proper care of the vehicles used.

Your small merchant will immediately come forward with the statement that since he has need for only two horse-drawn delivery wagons, for instance, the use of a motor truck in their stead is absolutely out of the question. He will say that he is getting along well enough with his horses and that he sees no reason for changing.

In fact, the merchant who would have need for one or two trucks only is the hardest proposition for the truck manufacturer and the dealer. There is bound to be a certain number of days in the year when one or the other of the trucks is out

of order, and this the skeptical merchant brings forth as an unsurmountable argument against their use. His horses he is always reasonably sure of, and if his truck becomes disabled what is he to do? No, he shakes his head and says that he thinks he



Pierce 5-ton truck equipped with coal-dumping body

Alco 2-ton truck specially designed for brewery trade



Portion of the Coliseum where the Garford, Walker and Knox exhibits held forth

will stick to his horses and not be bothered with motor vehicles, which he feels are not in any way adapted to his line of business. The other fellow may be able to make them pay, but he is sure that he cannot.

One reason for the adverse opinion which the average small dealer holds toward the use of motor vehicles, is that the experiences which perhaps he himself has had with them when they were more or less in their development stage or those which he has seen others experience have set him against them. The motor truck has not always been as practical and mechanically right as it is today, and it is unfortunate that it has created a bad impression of itself to many a merchant who gave it a trial several years ago when it was still in its development stage and not the perfected machine which it is at present. That prejudice

which exists against it in view of its early performances is rapidly being lived down and even the most skeptical are beginning to sit up and take notice.

Many a grocer, meat man and truckman has nosed around through the recent commercial car exhibitions at New York and Chicago, has listened to the real facts which have been given him by the attendants at the exhibits and has gone away favorably impressed, his skepticism about overcome.

In the pages which follow, it is proposed to bring out wherein the truck would be an advantage in nearly every line of business which maintains a delivery or freight transportation service, no matter what its magnitude.

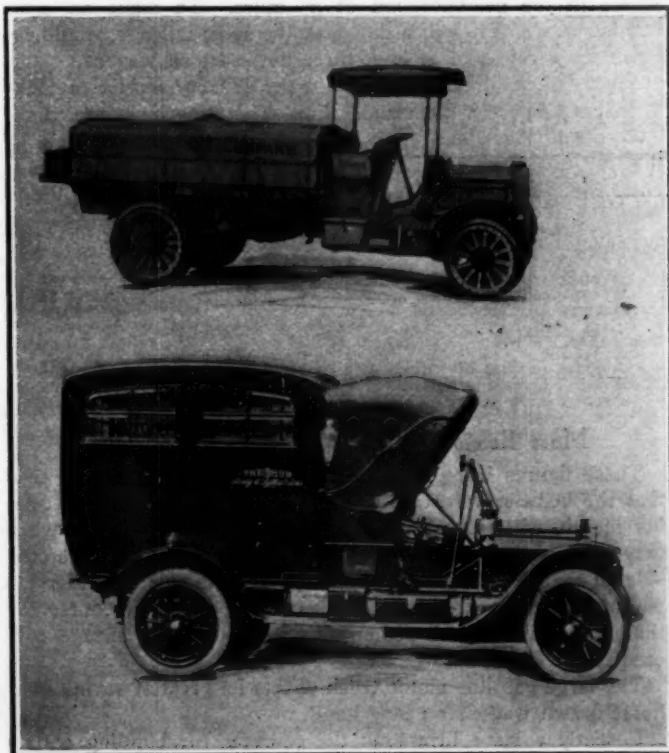
Take for instance, the baker who perhaps has four horse-drawn delivery wagons and covers one-quarter of his territory with each. Two small delivery cars would take care of his business at a saving, but it might be hard to convince some tradesmen of this. Each of the delivery cars could have mapped out for it a territory equal to about half of the whole field to be covered. The customers would be more pleased, for they would receive their goods with less delay.

Or take for example the instance of a bakery installation of motor trucks. Accurate figures extending over a period of two years were compiled, the head of the concern being a business man in the truest sense of the word. He kept figures on his expense with four horse-drawn delivery wagons for this period, then sold them and purchased two motor delivery cars of the electric type, having a carrying capacity of 1,000 pounds each. This was two years ago. He now has a set of figures for the electrics which cover the same period as the horse-drawn wagons. The comparison follows:

Two years' expense and cost, horse and wagon equipment	
4 horses at \$150 each.....	\$600.00
4 wagons at \$250 each.....	1,000.00
4 sets harness at \$45 each.....	180.00
Harness repairs.. { \$34.50 first year }	90.50
{ \$56.00 second year }	
Shoeing, feed and sickness, 2 years.....	3,152.00
Repairs to wagons, etc.....	176.00
4 drivers at \$2.50 per day, each.....	6,000.00
4 assistants at \$1.25 per day, each.....	3,000.00
Total	\$14,198.50

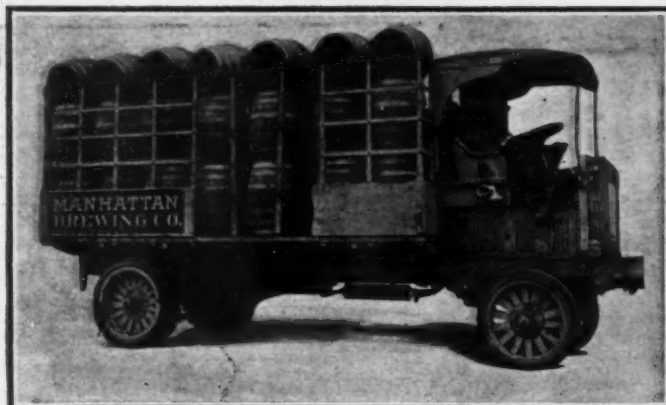
Two years' expense and cost, electric equipment	
2 electric delivery wagons.....	\$4,200.00
Tires, solid rubber, up-keep and renewal, 2 years.....	570.00
Battery up-keep and replacement.....	493.00
Battery charging.....	492.00
Car depreciation, 5% per year.....	470.00
2 drivers at \$2.50 per day.....	3,000.00
2 assistants at \$1.25 per day.....	1,500.00
Interest at 6% on difference in original investment, 2 yrs	290.40
Total	\$11,015.40

Balance in favor of electrics, \$2,283.10.

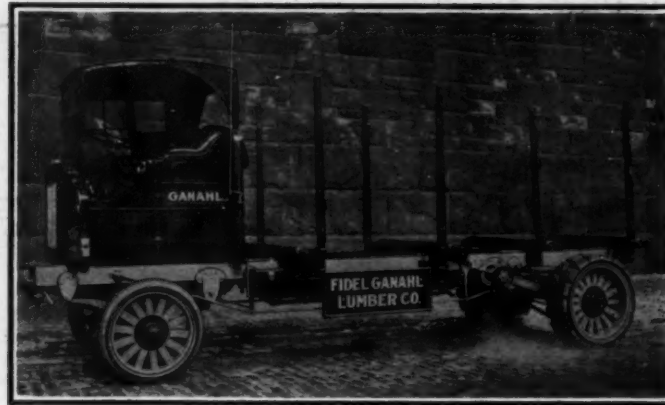


Peerless tank wagon fitted for carrying oil

White delivery wagon designed for The Hub



Mogul 6-ton truck used by the Manhattan Brewing Company



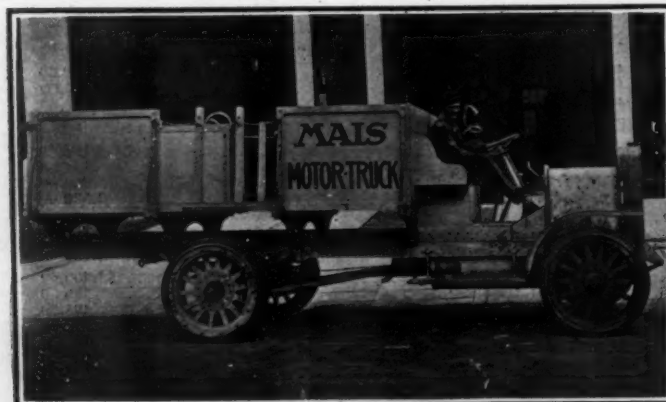
New Mogul chassis shown at Chicago for the first time



Alco 5-ton truck fitted for unloading coal by gravity



Commer 6 1/2-ton truck transporting an aeroplane



One of the latest body models fitted to the Mals truck

The saving effected averages \$1,600 a year for this particular installation, and it will be noticed that the electric gets the worst of the comparison even then. For instance, the tire expense seems rather higher than in the ordinary case, and the battery figures of nearly \$1,000 are somewhat in excess of those usually found.

It must be borne in mind, too, that this class of delivery service is the very worst as regards the showing of the commercial car, as it is almost entirely composed of short hauls, which materially cut down the total daily mileage.

Four horses would, under ordinary circumstances, be pushed to cover the same ground in a day that two electric could easily get over. In the service here cited, it is even possible that the entire delivery might have been accomplished with one electric vehicle, although such a system would not have taken care of deliveries so rapidly, nor would it have allowed for the possible laying up of the car for any length of time for one reason or another.

Then, too, this would depend largely on the mileage to be covered and the number of deliveries to be made. Assuming on an average 200 deliveries a day, the electric could cover somewhere in the neighborhood of 35 miles. To make an equal number of deliveries in a day over the same mileage, would require the services of at least three horse-drawn wagons.

Eight Baker electrics are used in the delivery service of Halle Brothers Company, Cleveland, Ohio. These machines are of the 1,000-pound class, and records kept by the concern, which, by the way, is a large retail dry goods house, show the per package costs for the months of November and December, 1911, to be as follows:

November, 1911—

Average number of parcels delivered per day.....	164
Average mileage per day.....	36
Average cost per parcel.....	\$0.04

December, 1911—

Average number of parcels delivered per day.....	237
Average mileage per day.....	35
Average cost per parcel.....	\$0.027

Most Economical When Work Is Heaviest

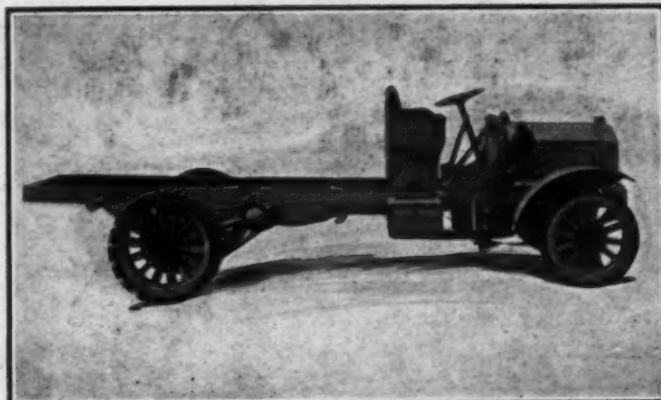
These figures bring out several interesting facts. It is seen that the vehicles were the most economical during the December month, when the deliveries were the heaviest, that is, when they were pushed. The reason for this is plain when it is considered that the fixed operating costs are the same whether ten packages are delivered in a block or only one. Of course the time in the first case is somewhat greater, but the mileage covered is the same.

The large gasoline motor truck effects its greatest saving over horse-drawn wagons on long hauls.

Recently a large firm took the contract for building a dam near Bridgeport, Conn. The scene of operations is 8 miles from the city, and the distance to be covered at each trip is therefore 16 miles. The engineers in charge figured that it would require



Peerless truck in use by the Sanitary Steel Couch Company



Chassis of the same vehicle stripped of its body

thirty teams, each drawing a 2-ton load to carry the required 60 tons each day to the site of the dam.

Then they put their heads together and thought some more. Finally they set down the following figures:

30 teams at \$5.00 per day.....	\$150.00
3 trucks, 5-ton capacity, each. Total cost per day.....	50.00
Saving	\$100.00

They immediately agreed that the work could be carried on by three trucks, each of 5 tons capacity, and that the total cost per day incident to their use would not exceed the figure of \$50 set down above. To transfer 60 tons the 8 miles and return to the starting point, required that each truck carry its maximum load of 5 tons each trip, and that each make four round trips daily, which is by no means a difficult standard to set for this class of vehicle.

Kansas City Records Great Saving

A team of horses could make but a single trip a day, and for such a mileage, two tons would have been the maximum load which each team could have hauled.

As a result of this slight investigation, the three 5-ton trucks have been ordered in place of the contemplated thirty teams of horses. And about \$3,000 a year will be saved thereby.

In the service of the Kansas City street department are three 2-ton Sampson trucks and three 3-ton machines of the same make. Each machine has been found to do the work which was formerly done by from seven to nine teams of horses. At the end of three months' service, an analysis of operating costs was made by the street commissioner. What he found was as follows:

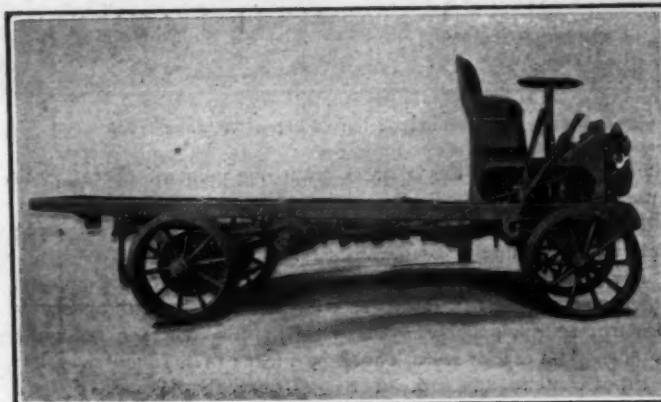
Average cost of horses and wagons doing the work equivalent to that of 1 truck, per month.....	\$960.00
Average cost of 1 truck, per month.....	125.25
Saving due to use of 1 truck.....	\$835.75
Saving from 6 trucks at same rate.....	\$5,014.50

These figures do not include such items as depreciation, insurance and tires, but allowing for these, there would still be a big margin.

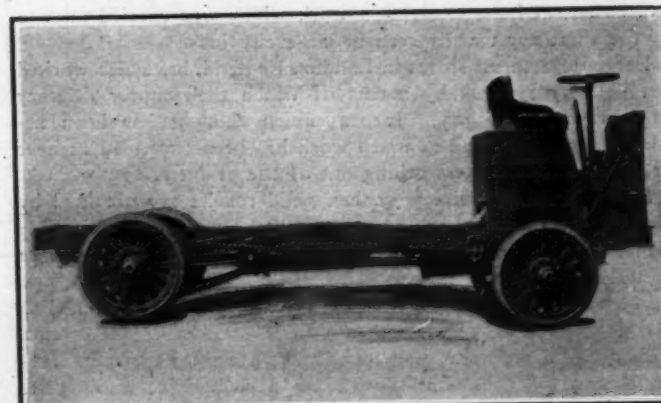
In this particular department, the 2-ton machines are used to gather up the refuse collected at the curbs and to convey it to the city's dumping ground. In emergency cases, such as big fires and the like, they are pressed into service to assist the fire department. One of the 2-ton trucks is also used to carry the sewer gang from one part of the city to another, whenever an urgent call is received from the water department.

Haulage of paving materials, asphalt, sand cement and rock is the use which Kansas City makes of two of its 3-ton trucks. They are fitted with power-operated dump bodies to facilitate their work.

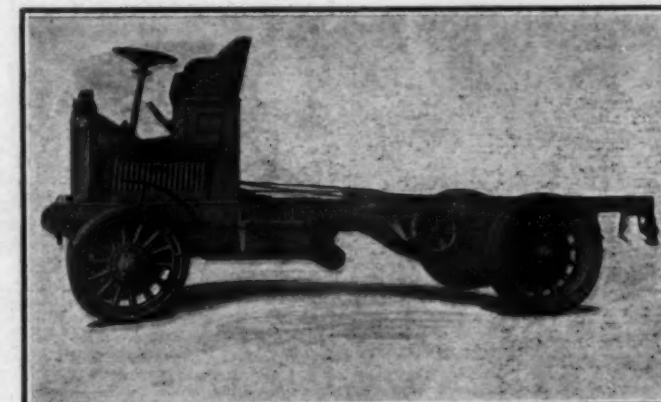
The third 3-ton machine which the city owns serves as a general utility truck and is used in miscellaneous municipal work, such as the carrying of tools and materials, and even for



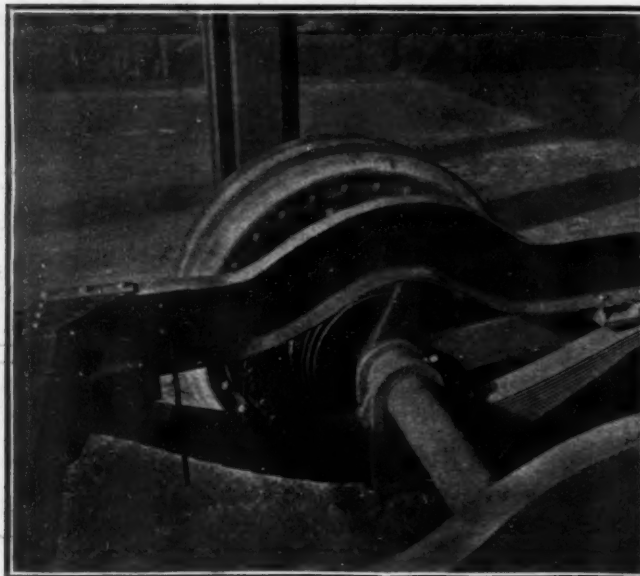
Side view of Locomobile truck of 5 tons capacity



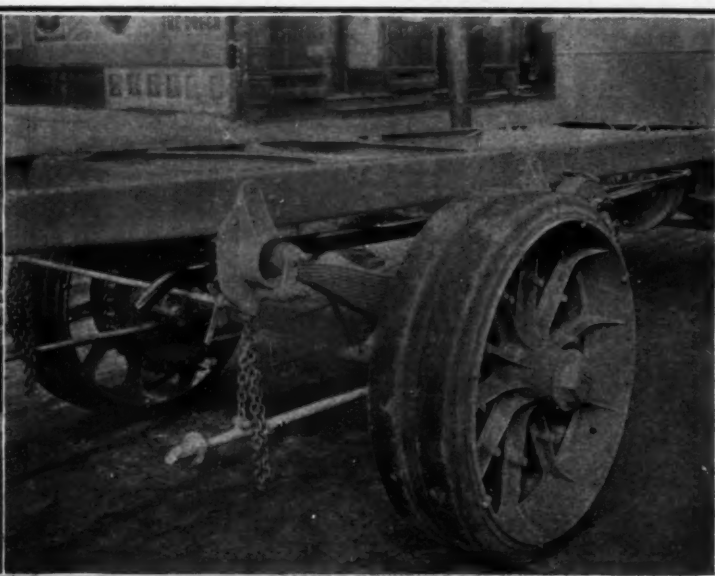
Chassis of the new 5-ton low-hung Reliance truck



Showing the chassis of the new 5-ton Lozier truck



Underslung construction of 5-ton Reliance truck



Locomobile 5-ton truck with steel wheels and sprags

the transporting of the laborers from one point of operation to another.

Kansas City's example in the use of motor trucks is being followed by a number of other cities.

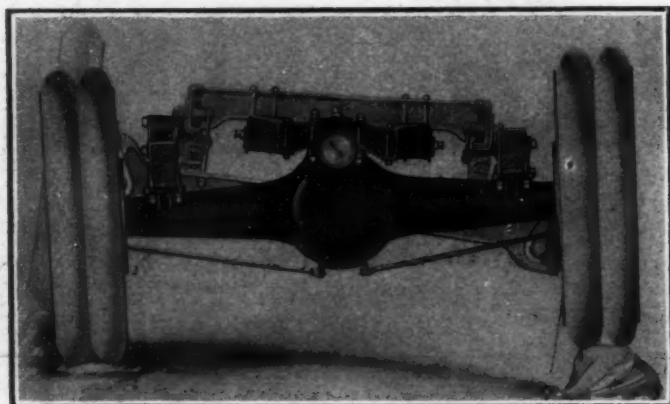
For excavation work at Albany, the R. T. Ford Company, Rochester, N. Y., purchased three Packard trucks with specially-constructed dump bodies. The haul in this case was not quite a mile. The trucks were loaded by means of a steam shovel.

From comparisons with other costs on similar classes of work which it has done, the Ford company found that the three trucks were effecting a great saving, each truck doing the work of about eight two-horse teams. This is by no means an unusual case, and the excavation work which was carried on was of the character usually seen in large city jobs.

Large department stores in London, England, have also worked out delivery systems by means of which their motor delivery cars are made to pay. Just as much thought has been accorded the matter and as much work has been expended as here in this country in the working out of the problem.

In one English delivery system, good results are obtained by placing two men on each motor wagon. One devotes his time exclusively to the driving of the car, while the other takes care of the delivery of packages.

For a certain period each month, each machine is remanded to the shop, regardless of whether it is in need of repair or not. This repair department is owned and operated by the firm. During this period of forced lay-off, the machine is carefully gone over and put into first-class running condition. In this way, impending breaks in the mechanism are detected before they happen.



Showing compensation feature of the Blair rear axle

The driver is required to stay with his machine while it is out of commission, and to act in the capacity of helper to the mechanic who does the overhauling. He thus becomes familiar with all of the mechanical details of the car which he drives. Knowing its construction intimately in this way, he is less apt to abuse it when on the road. The company which has adopted this system seems well pleased with the results obtained.

Another phase of the truck industry is the use of rented machines by firms who for one reason or another do not care to buy them outright.

Status of Truck-Renting Concerns

These concerns lease or hire the trucks which they use from other companies, which make a business of this class of service. Several of these rental enterprises are carried on in New York and other large cities. Fixed charges by the week, month or year are made to the firms using the machines. These charges are based on the capacities of the trucks employed and they are usually for a 9-hour working day. They include the wages of the drivers and run something like this:

Load capacity	Daily discharge
$\frac{1}{2}$ ton	\$9.00
1 ton	10.00
2 ton	12.00
3 ton	14.00
5 ton	16.00

The companies making use of this service are permitted to have the machines which they rent painted and lettered with their own firm names in any way desired, provided the period of lease extends over a year or more.

In this way a firm may operate machines just as if it owned them outright, whereas its care and responsibility for them ends with the payment of the rental charge. Judging from the success with which these leasing companies have met, there is a place for this class of business in the commercial car field.

Through the use of a motor truck the Passaic Metal Ware Company, Passaic, N. J., has saved over \$7,000 a year. This concern's haulage was rather of an intermittent nature, and prior to the buying of a Packard 3-ton truck, which it now has had in its service for several years, the practice was made of hiring outside teams whenever occasion demanded, rather than the keeping of a large number of horses and wagons which would be idle at other times.

The average cost of these hired teams amounted to about \$6 a day, and it is considered that the truck does the work of at least five teams. At this rate the daily team cost would be \$30 a day, and to this, \$6 would have to be added for extra labor to each horse and wagon equipment.

Assuming that the company made use of these hired teams for 300 working days, the comparison follows:

Cost of 5 teams at \$36 per day.....	\$10,800.00
Interest on cost of truck (\$3,840) at 6%.....	\$230.40
Wages, 2 men, one at \$3 a day and the other at \$2 a day.....	1,500.00
Gasoline.....	264.00
Tires.....	325.00
Repairs.....	300.00
Oil.....	67.50
Depreciation (20 per cent.).....	768.00
Total.....	\$3,454.90

Deducting this total from the yearly cost of the teams leaves \$7,345.10 to the credit of the truck. Insurance and liability have been left out in this total, but even with these items added, the result would be very nearly the same.

Now the Passaic company has two trucks in its service.

For the transferring of milk from its farms to its distributing station in Brooklyn, the Slawson Decker Company effects a saving by the use of a large Hewitt truck. From this supply depot the company delivers to its customers by means of the ordinary type of horse-drawn milk wagons. In this instance, the truck has taken the place of the "milk train" for a long haul.

And sooner or later, the horse-drawn part of the equipment should be replaced by small electric delivery cars or by their gasoline rivals. If the saving to be effected from the use of a properly regulated system of this kind were left entirely out of the question, think of the advertising possibilities which it reveals!

Another 3-ton Packard machine fitted with a special body for the loading and unloading of coal is used by the F. H. & A. H. Chappell Company, New York. This concern has come to the conclusion that its saving through the use of its truck runs into the thousands every year. Its figures are interesting:

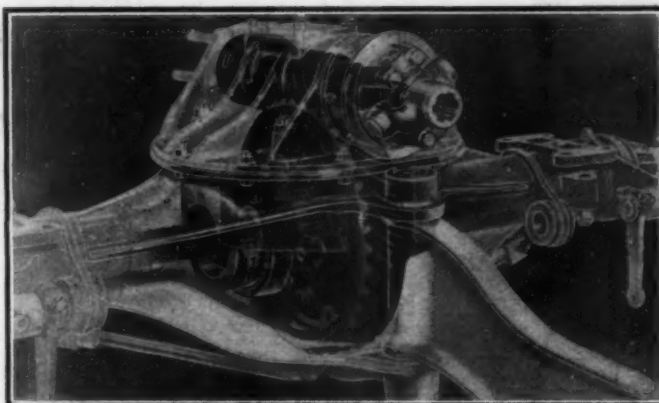
Cost of truck upkeep and wages of driver, per year.....	\$1,925.00
Cost of equivalent teams and drivers, per year.....	3,945.00
Saving through use of truck.....	2,020.00

Field for Motor Trucks in Coal Business

In making this comparison, the company has determined that for its work the one truck renders the same amount of service on the average as three teams of horses and their equipment.

A large field for the motor truck is open in the coal delivery business, and demonstrations are daily making converts to the truck way out of skeptics. The truck makers in many cases have conducted tests perhaps as much for their own information as in the hope of selling their machines to the parties in whose delivery systems they have installed a truck for a test period.

Demonstrations of this kind are usually done on the basis of the dealer whose goods are being handled paying for the service



Phantom view of rear axle of 5-ton Pierce-Arrow truck

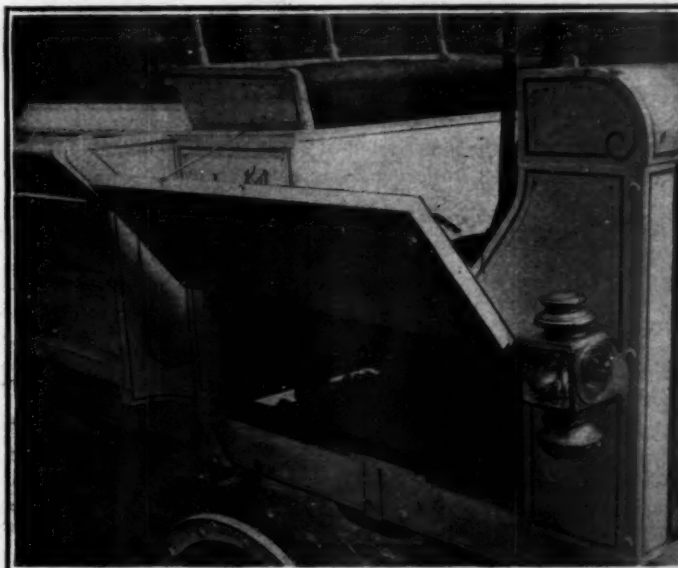
at a fixed charge, making it a strict business proposition and placing the merchant under no obligation to purchase the machine or machines which are temporarily incorporated in his delivery system.

In this connection, some figures which are obtained from the report of a demonstration given the City Fuel Company, of Chicago, by the Pierce-Arrow Company, with one of its 5-ton trucks, equipped with a rear dump body, are of particular interest. This test was conducted January 11 to 17 of this year, which period included some of the most adverse weather conditions of the present winter.

The amount of coal delivered during this time amounted to 710,135 pounds, and the cost of delivery averaged \$0.246 per ton. The mileage covered was 343 miles, or an average of 48.9 miles per day.

These figures are made up as follows:

January 11—	
Miles run.....	46.5
Tons of coal carried out.....	50.75
Gasoline used.....	18 gals.
Number of trips.....	9
Net running time.....	5 hrs. 36 min.
January 12—	
Miles run.....	74.4
Tons of coal carried out.....	78.5
Gasoline used.....	14
Number of trips.....	14
Net running time.....	12 hrs. 57 min.
January 13—	
Miles run.....	45.1
Tons of coal carried out.....	48.5
Gasoline used.....	15 gals.
Number of trips.....	9
Net running time.....	4 hrs. 25 min.



Accessible position of Dayton truck motor under seat.



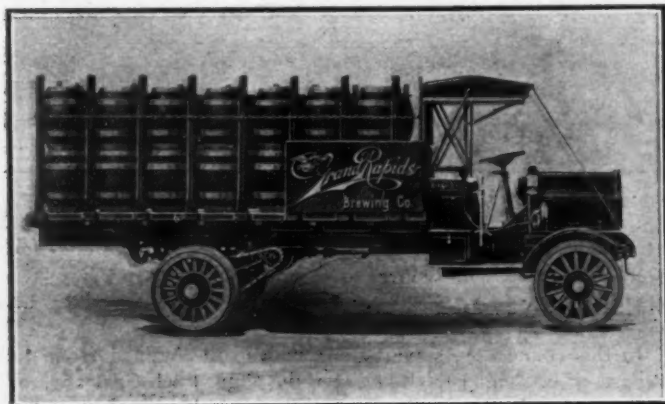
Showing the Grabowsky idea of motor accessibility

January 14—

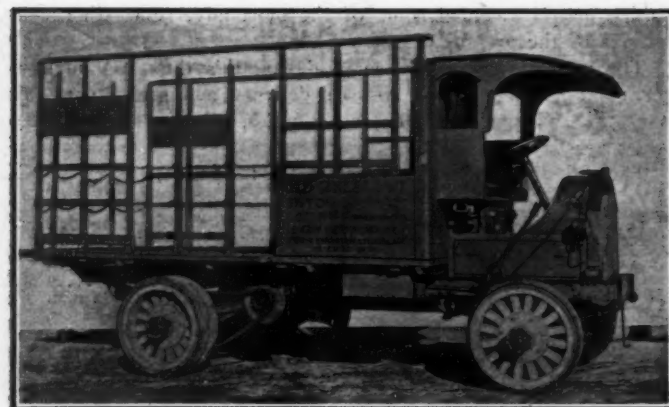
Miles run.....	33
Tons of coal carried out.....	31.4
Gasoline used.....	12 gals.
Number of trips.....	6
Net running time.....	1.4 hrs. 30 min.

January 15—

Miles run.....	68.4
Tons of coal carried out.....	73.2
Gasoline used.....	14.5 gals.
Number of trips.....	12
Net running time.....	17 hrs. 30 min.



Special stake-body 3-ton KesselKar truck for brewery work



Old Reliable 3 1/2-ton stake truck for special service



Model B Monitor bus specially adapted to hotel work

January 16—

Miles run.....	34
Tons of coal carried out.....	33.4
Gasoline used.....	8.5 gals.
Number of trips.....	6
Net running time.....	7 hrs. 5 min.

January 17—

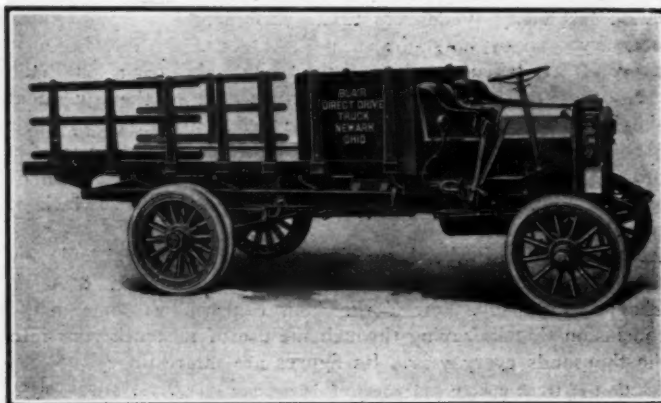
Miles run.....	41.5
Tons of coal carried out.....	39.2
Gasoline used.....	12 gals.
Number of trips.....	7
Net running time.....	7 hrs. 30 min.

On January 12, the greatest tonnage was delivered, 78 1-2 tons being handled, the mileage of 74.4 miles being also the greatest covered during the test. The average temperature on this day was somewhat below zero.

For the coal trade, these figures go to show that the use of the motor truck is not an experiment, and that during the winter when the drivers of teams and the horses themselves are at their lowest efficiency, the truck is undeterred.

We might go on and cite innumerable other instances of large savings incident to the use of motor truck and small motor delivery cars in as many different lines of business.

A large number of truck manufacturers who have been in business for a number of years have compiled a great volume of these comparative cost records. One such company, and a real pioneer in the commercial vehicle field, has compiled a table of average costs of operation of its principal sizes of gasoline



New direct-drive Blair truck fitted with stake body



Lansden electric ambulance in service of Bellevue Hospital

trucks covering the long period of seven years. This table shows results of daily operation costs as given below:

Truck capacity	Average Mileage per day	Cost per day
2-ton	70	\$10.60
3-ton	62	12.20
4-ton	55	13.80
5-ton	50	15.00

Another long established company has compiled a similar cost table covering a period of more than six years. This runs as follows:

Truck capacity	Average daily cost of running
1-ton	\$8.07
2-ton	10.25
3-ton	11.30
5-ton	14.80
7-ton	16.45
10-ton	18.50

Figures for 1,500-pound wagons are furnished by a well-known pioneer in light car manufacture. They apply to nearly 1,000 of

these machines in various parts of the country and in many lines of trade. The results of the tabulation show the average daily cost of running such a wagon capable of averaging 70 miles a day in regular service to be \$86.10 a month, or \$3.20 a day. This, however, does not include storage or garage charges nor insurance and liability.

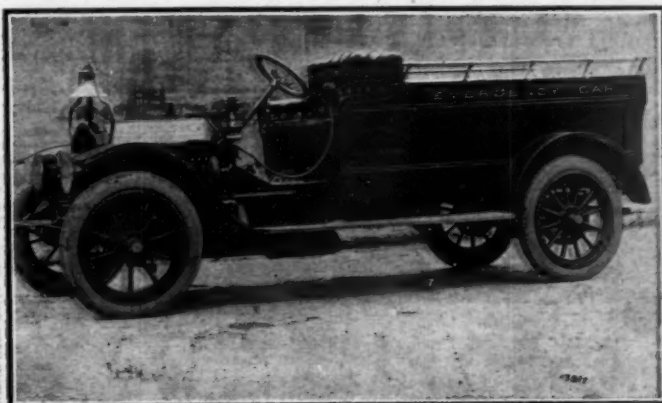
The above figures which are given for the trucks of from one to ten tons capacity include all items properly chargeable to the hauling service, both actual running expenses and overhead. Drivers' wages are figured at \$16 to \$22 a week, gasoline at 12 cents a gallon, oil at 30 cents a gallon, garage at \$225 to \$300 a year, tires at from \$275 for a 1-ton machine to \$1,650 for a 10-ton machine, overhauling and general repairing at \$300 to \$550, depreciation at 15 per cent., interest at 5 per cent. and fire and liability insurance at from \$150 to \$240 a year.

According to the testimony of large business houses, it costs

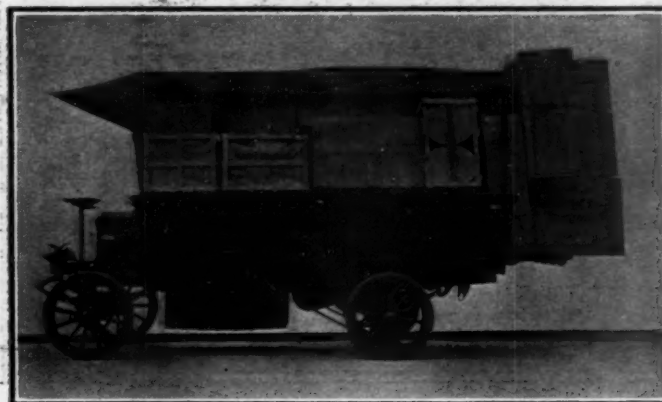
is hopelessly stalled, or very badly crippled by blizzards, the power wagon is able to make its way through the snow drifts all day long and adhere closely to its regular schedule.

Icy pavements offer no obstacle to the power wagon. Tire chains properly fitted to the driving wheels allow it to proceed on its way and to carry its usual load.

Following is a summary of new models and old ones retained by some of the principal builders of commercial vehicles:



40-horsepower 1 1/2-ton wagon in Boston municipal service



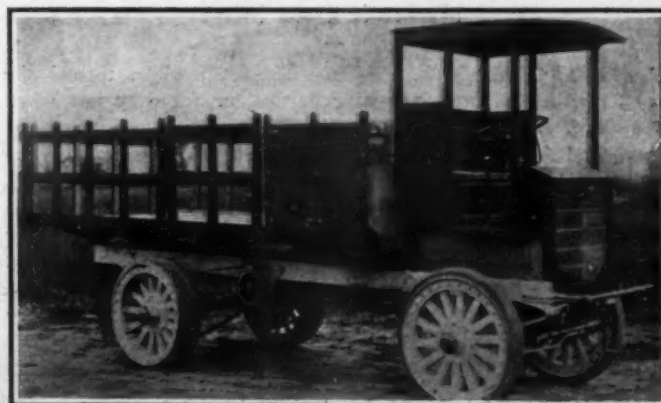
Baker electric 2-ton truck equipped for express service

from \$6.00 to \$6.50 a day to keep a wagon and team of horses at work, but the motor truck does the work of three or more such outfits, as the figures here will show. An operative saving is thus effected of at least 33 1-3 per cent. Figured in cost per ton-mile, the gasoline motor vehicle shows an efficiency of 175 to 200 per cent. as compared with horses.

Aside from the considerations of the saving due to the use of motor trucks, big merchants who have used them for a number of years have found that they have an actual earning power. It has been demonstrated that they really make money by creating new business.

Under normal conditions their superior speed and endurance enable them to serve customers who live too far from the store to be reached by horse and wagon. Thus new trade is attracted which could not be reached before the advent of the motor vehicle.

But it is under abnormal conditions that the motor vehicle gives the largest return to the merchant. When ordinary traffic



Lauth-Juergens stake-body truck with cab over motor



Garford 3-ton truck with special furniture-moving body



Hart-Kraft delivery wagon of 1000 to 1500 pounds capacity

NEWEST MODELS ADDED TO COMMERCIAL FIELD

Name	Retained	New for 1912
Atterbury	2, 3	1
Hewitt	2, 3, 10	1, 1 1/2, 3 1/2, 4 1/2, 5 1/2, and 7
Mack	2, 3, 4, 5, 7	1, 1 1/2
Kelly	2, 3	1
Packard	3	2
Knox	2, 3, 4, 5	6
Chase	3 1/2, 1, 1 1/2	2
Gramm	2, 3, 5	1
Garford	1 1/2, 3	5
White	3 1/2, 1 1/2, 3	5
General Vehicle	1/2, 1, 2, 3 1/2, 5	700*

Montreal's a Business Show

There is a Pronounced Trend Toward the Family Touring Car

Canada is Prosperous, Money is Plentiful and Stock Market in Good Shape

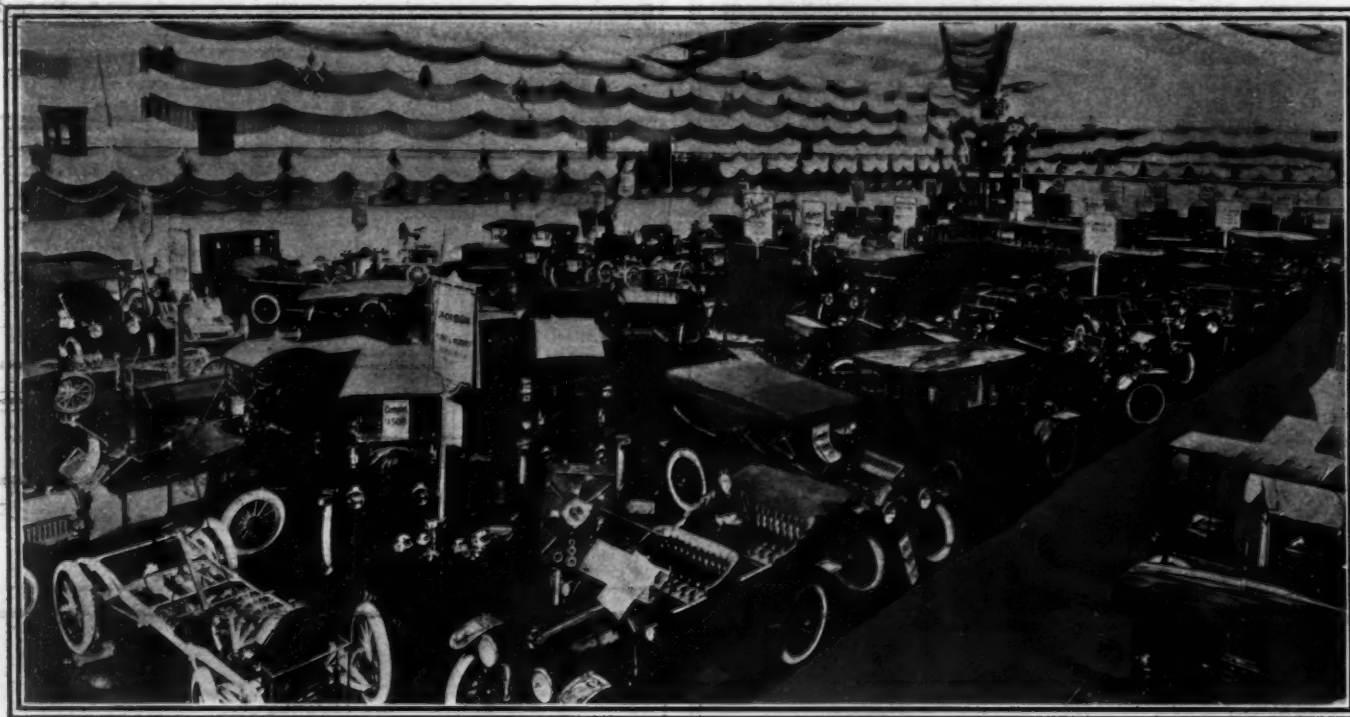
MONTREAL, CAN., Feb. 10—The automobile, turned the Drill Hall into a gigantic garage on Saturday last when the Sixth Annual Automobile Show under the auspices of the Auto and Aero Club of Canada was opened by Mayor Guerin.

Mayor Guerin, in his opening address, touched on the great influence which automobiles and those manufacturing and possessing them have upon the good roads movement, and spoke of the large sums of money the Quebec Government is going to spend on the great national highway between the Quebec, Montreal and the international border to link with the road to

price. It is well known that the market movement in the popular-priced division has been affected by many new models embodying higher standards of value for a given cost, and, in some cases, lower prices for a given value.

The sales reported show about an equal proportion of pleasure and commercial cars and, to the automobile dealers, the growing in favor of the automobile traction trucks is an encouraging sign.

The number of cars in Montreal at about this time last year was somewhere in the vicinity of 1,000 to 1,200. Between 1,600 and 1,700 cars are now in use here. One can count anywhere between fifteen to twenty new dealers in Montreal, which means at least this number of new cars or more, as some firms represent more than one line. The Eastern townships, Quebec City, and in some cases Ottawa are included in the territory that Montreal covers as a distributing center, and throughout the Province of Quebec sub-agents are appointed in the larger towns. It is estimated that fifty or more different makers are represented at the show as compared with about thirty last year. Nearly all the new known and advertised American cars are now represented in Montreal, while very few



Interior of Drill Hall, Montreal, where sixth annual show was held

New York. It would mean a better understanding between Canadians and their cousins in the neighboring republic and a greater intercourse between the two peoples.

General car conditions in Montreal are all that can be desired, and one decided advantage this year is the early date of the show, which is a month ahead of last year's exhibition. Canada is assured of prosperous times to come for some time, and there is every reason to believe that the automobile industry will share in the prosperity. Money is plentiful and the stock market is in good shape.

Current automobile buying in Montreal shows a pronounced trend toward the family touring car. Never before has there been such a strong general preference for cars of this type. Recent activity in the selling field has been featured by a greater percentage of touring car sales than any of the old-established agents ever have experienced.

Two distinct factors have been observed in explanation. One is the increasing tendency to regard the automobile as an inseparable part of home life and the other is the element of

autos of the English type are shown. Canadians do not seem to take to cars of English manufacture, claiming in a great many instances that they are not suited or built to stand Canadian roads and climatic conditions.

Strangely enough, there is not a single English car in the whole show, and only four or five French ones are exhibited. The bulk of the exhibits are cars of Canadian and American manufacture.

The electric car has not been very successful in Montreal until recently, but there are now a couple of makers represented and they are trying to demonstrate the capabilities of this type.

The show this year has brought a large number of representatives from all parts of Canada and the United States who are eager and well qualified to talk the merits of the cars they represent in competition with several new cars from across the ocean shown for the first time in Montreal.

Following is a list of the exhibitors:

Robert & Robert, Jackson; Ford Motor Company of Canada, Ford; Russell Motor Car Company, Russell; McLaughlin Mo-

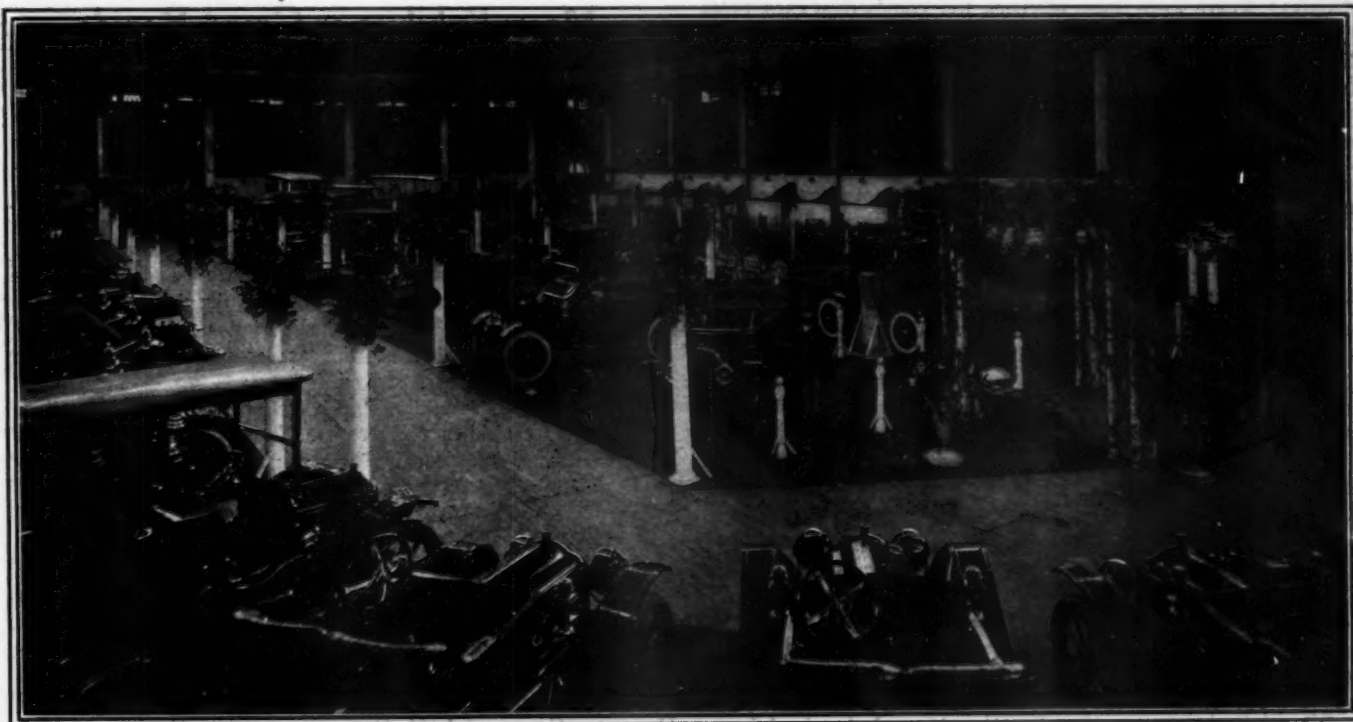
tor Car Company, McLaughlin, Fiat and Rauch & Lang electrics; Comet Motor Company, Chalmers and Packard, pleasure cars and trucks; Brantford Carriage Company, Brantford trucks; Automobile Française, Ltd., Berliet and Gregoire; Motor Import Company, Franklin, Hupmobile and Hudson; A. Jennings & Company, Gramm trucks; Pope-Hartford Company, of Canada, Pope-Hartford; Baker Electric Company, Baker electrics; Hamilton Machinery Company, Interstate; Rousseau Brothers, Cadillac and Kelly trucks; Reo Motor Car Company, of Canada, Reo; Montreal Locomotive Works, Alco pleasure car and truck; E-M-F Manufacturing Company, E-M-F; P. Gadbois & Company, Mitchell; Gareau Motor Company, Everitt, Amplex and Kissell; Ramsay Motor Company, Schacht; Clarke-Carter Automobile Company, Cutting; Levesque's Agency, Abbott-Detroit; J. A. Michaud, Vinot; Goodyear Tire & Rubber Goods Company, the Canadian Consolidated Rubber Company, John Millen & Son, Gaulois Tyre Agency of Canada, National Carbon Company, S. F. Bowser & Company, Dunlop Tire & Rubber Goods Company, Bosch Magneto Company, Rubbert Tire Wheel Agency, Independent Tire Company, Imperial Oil Company, Mussens Limited, and R. J. Levy.

Dayton Show Includes 33 Makes

An Excellent Display of Accessories is Likewise Featured

Knight Motor and Marmon "Wasp" Among the Attractions in the Exhibition

DAYTON, O., Feb. 12—Eighteen local dealers showing seven-nine automobiles, fully equipped, ten chassis, any of them working by electric motors, representing in all thirty-three different makes of automobiles, comprise the display at Dayton's third automobile show, and the first held under the auspices of the Dayton Automobile Club. The Marmon "Wasp" is the central figure of the special exhibits. The Knight Motor is being given its first local public exhibition. The show will close next Saturday night. Following is a complete list of exhibitors: Cadillac Motor Car Company, Cadillac; G. W. Shroyer & Com-



General view of the St. Louis show, which closed last Saturday

Preparing for Hub's Big Show

BOSTON, MASS., Feb. 10—The preparations for the tenth annual motor show in Boston, which opens three weeks from tonight and continues for two weeks, are now completed. In a few days the decorations will be brought to the city and the hall will be turned over to the Boston Automobile Dealers' Association to begin the interior preparations for the show. In speaking of it today Manager Chester I. Campbell said: "Generally acknowledged as being the epitome of all trade shows, the Boston show, coming as it does, the very last of the exhibition in the country not only presents everything worth seeing in the motor line, but really ushers in the beginning of the season of outdoor life."

"With double the facilities of last year, even the space is practically all exhausted, and there are still many persons unable to obtain space. This is particularly so of the pleasure car section, which has long been oversubscribed."

"The commercial vehicle section, which comes immediately after the pleasure car show, from March 13 to 20, will prove a revelation, as well as a wonderful educational institution."

pany, Hupp-Yeats, Mitchell, Pierce-Arrow, Columbus Electric and R. C. H.; Hosler Overland Sales Company, Overland and Locomobile; Standard Motor Car Company, Hudson and Marmon; Empire Motor Car Company, Cutting; Heathman-Solliday Company, Paige-Detroit and Abbott-Detroit; Dodds Motor Car Company, Chalmers-Detroit; G. G. G. Peckham Motor Car Company, Buick, Peerless, White and Baker Electric; Dayton Engineering Laboratories Company, Delco system; Miami Valley Automobile Company, Reo and Marathon; Dayton and Troy Automobile Company, Ford; H. P. Michaels Sales Company, Hupmobile and Staver-Chicago; Marion Motor Car Company, Marion; American Sales Company, American; Ohio Automobile Company, Republic and Pathfinder; Baker-Speedwell Agency, Speedwell; Dayton Automobile Company, Winton; Stoddard-Dayton Sales Company, Stoddard-Dayton; Dayton Electric Car Company, Baker Electric.

Accessories—Patterson Tool Supply Company, Mead Engine Company, Standard Oil Company, S. C. R. Storage Battery Company, Dayton Equipment Company, Gerkins Oil Company, Economical Tire Company, Moore Oil Company, Silvey Electric Company.

Snowfall Marks Atlanta Show Opening

Cotton Prices Higher and Prospects for Business in the South Hopeful

An Even 100 Cars on Exhibition the Opening Day

ATLANTA, GA., Feb. 10—With snow flying with such vigor as to recall the first days of the New York shows and with weather conditions so bad that, for the alleged Sunny South, they could hardly be worse, the Atlanta automobile show was thrown open at 2.30 o'clock today. Governor Joseph M. Brown switched on the lights and as he did so the Kilties' Band played the inevitable Dixie.

Here is a statistical résumé of what the show opened on:

Twenty-seven exhibitors and an even 100 cars (including everything that was on four wheels, including split and polished chassis). There were seven electrics, five commercial cars, three cut chassis, eight polished chassis, nine accessory, oil and top displays, five closed cars and four mounted motors—full-sized and miniature.

The Atlanta Auditorium-Armory in which the show is being held presented an unusually fine appearance. The decorations were not as elaborate as those of the National show held here a couple of years ago, but they were rather more tasteful and satisfactory. Green and white were the colors used and they were handled with good effect.

Very little could be told on opening night of what was to be expected of the crowd. Nothing could have done very much business in the face of such opposition as was offered by the weather. However, considering the excellence of the exhibit and the effort that has been made to get out both dealers and motorists, there is little doubt but that the crowds will be large when the weather improves.

The Atlanta show is apparently a combination of retail show and agency-placing proposition. It is given by the Atlanta Automobile and Accessory Dealers' Association and this body is made up of both branch houses and retail dealers.

Certain it is that every effort has been made to get dealers present and they will be on hand in very large numbers. The Ford branch estimates that it will have 80 per cent. of its dealers present and one is coming from as remote a point as Key West.

One fact that indicates that the show will result in the placing of many agencies is that Thursday, Friday and Saturday of show week there will be a merchants' convention in Atlanta and 800 to 1,000 dealers from near-by towns and cities will be in Atlanta. As in the small places of the South the men who run the "general stores" usually finance the automobile agencies it is likely that some business will be done.

Every effort was made by the promoters of the show to attract prospective buyers and prospective dealers to Atlanta. An extensive press campaign was conducted, the billboards of Georgia, Alabama, Florida, Tennessee and Louisiana were used extensively, thirty cities were heavily billed and special work was done by local dealers and branches in getting out their prospects, dealers and friends.

The question of whether or not this will result in a falling off in general selling conditions, or whether it will chiefly affect the high-priced cars or the low-priced ones cannot be determined as yet, and the Southeastern market is in a freakish condition. There is a heavy demand for certain sorts of high-priced cars and for certain makes of low-priced cars, while other high-priced cars and other low-priced cars, apparently as attractive in every way, are not selling well at all—which leads to the suggestion that perhaps the matters of salesmanship, advertising and service are responsible.

Special Efforts Made to Insure Dealers' Presence

The touring car holds a long lead over the runabout in the estimation of Southern buyers, and when there is a choice between 5-passenger and 7-passenger cars the latter usually gets the major part of the attention.

This is not a year when farmers are buying many cars. It is a poor year for farmers, with the cotton crop bringing so little; though in states unaffected by cotton—like Florida, Virginia, Tennessee and Kentucky—the farmers are buying automobiles in rapidly increasing numbers.

Many Exhibits at Grand Rapids

GRAND RAPIDS, MICH., Feb. 13—The third annual Grand Rapids Automobile show was opened in the Klingman Furniture Exposition building to-night. Fifty thousand feet of floor space are in use and this is occupied by twenty-eight exhibitors showing fifty-nine makes of cars with a value of \$500,000. Among the features are two cars equipped with Silent Knight engines, one shown with open working parts run by electricity and mounted on a pedestal. The decoration color scheme is green and old gold combined with royal purple and white. The flags, bunting and electric light masks are fireproof. There are twenty-one exhibitors showing accessories, using 8,000 feet of floor space. The value of the accessories shown is about \$500,000. The exhibitors are as follows:

Adams & Hart, Franklin, Rauch & Lang electric, Chase light delivery wagon; Allen & Dorothy, National; American Motor Sales Company, American Underslung; Austin Automobile Company, Austin; Becker Auto Company, Ford pleasure cars and delivery wagons; Buick Auto Sales Company, Buick; Central Auto Company, Cadillac; C. P. Dowling, Oakland motor cars and Ohio electric; S. A. Dwight, Everitt and Krit; W. S. Farrant, Chalmers motor cars and Columbia and Studebaker electrics; Fox & Wood, Abbott-Detroit; I. H. Gingrich, McIntyre; Grand Rapids Auto Company, E-M-F, Flanders, Westcott and Havers; Guarantee Auto Sales Company, Stearns and Knight; Hupmobile Sales Company, Hupmobile; International Harvester Company, I. H. C. power wagons; Mercury Garage, Mercury delivery wagons; Mitchell Motor Company, Mitchell; Moran Auto Sales Company, Maxwell, Columbia and Velie; Oswald Motor Car and Supply Company, Kissel Kar motor cars, Detroit and Baker electrics; Overland Motor Company, Overland, Garford and Marmon motor cars, Standard electrics and Federal truck; Palmer Sales Company, Peerless; Peck-Haynes & Company, Packard; Rambler Auto Sales Company, Rambler; Riekse Auto Company, Cutting; Stratton-Woodcock Auto Company, White, Hudson, Paige-Detroit motor cars and Broc electric; Townsend & Thwing, Lion; W. D. Vandecar, Reo and Stoddard-Dayton; Robert A. Willey Auto Company, Winton, R. C. H. Crow-Elkhart motor cars and Hupp-Yeats electric.

Accessories Department Exhibitors—John Bodbyl, L. W. DeLye, Paul Eifert, Folgers, G. R. Auto Supply Company, Grand Rapids Electric Company, Grand Rapids-Muskegon Power Company, Grand Rapids Automobile Club, Heth Bros., Inner Shoe Tire Company, W. B. Jarvis Company, Lewis Electric Company, Michigan Tire Company, Joseph Poisson, Richmond Sales Company, J. W. Russell, Star Clothing Company, William E. Starr, VerWys & Veltman, Wayne Oil Tank Company and O. A. Williams.

Trucks Lead at St. Paul's Great Exhibition

Cars Are Valued at \$600,000, With Interest Centered on Commercials

Big Building Permits of Adequate Display of Exhibits

ST. PAUL, MINN., Feb. 12—In one of the largest exhibition halls in the West, the second annual automobile show opened today at St. Paul. It is regarded as essentially a commercial car and a selling show. The enormous floor space permits a remarkable showing of heavy commercial cars with yet great room for pleasure cars and motorcycles, as well as accessories.

The Auditorium covers half a city block and at least 85 per cent. of that floor-space is available for such exhibits as are shown this year on the main floor and in the lobbies and foyers. The theater portion was released after a Sunday afternoon orchestral concert and immediately work was begun to lay a floor over the seats making one big, level floor space from street to street.

Since the first show in 1911, the St. Paul Motor Car Dealers' Association has been formed, which is working to make a success this year in co-operation with the automobile club, the Commercial club and the Association of Commerce. C. P. Joy is president of the organization; Felix Joswich is vice-president; J. P. Gertsen is trustee; L. H. Smith, secretary and George Foster is treasurer. This includes all dealers. Exhibits are made by all of them, by Minneapolis firms and by manufacturers who forwarded exhibits from Chicago by special train.

The hall is decorated with imitation mosaic arches, lighted from overhead by forty drops. The exhibits represent about \$600,000. One hundred cars and fifty trucks are shown by fifty exhibitors. The decorations cost \$3,000.

Nights of show week have been assigned as follows: Monday, Association of Commerce; Tuesday, Elks; Wednesday, Automobile Club; Thursday, Society; Friday, governor and staff; Saturday, chauffeurs.

One-half the net proceeds of the show will go to the Automobile Club of St. Paul toward the building fund.

Following is a list of the exhibitors:

R. C. H. Auto Company, R. C. H., Hupp-Yeats Electric; United St. Paul Motor Company, Columbia and Maxwell; Rauch & Lang Electric Car Company, Rauch & Lang; Martin Motor Car Company, Peerless and Velie; Central Automobile Company, Marmon and Reo; Foster-Lawrence Company, Stearns-Knight, Detroit Electric; Roller Motor Company, Overland; Western Auto Company, Franklin; P. J. Downes & Company, Rambler, Gramm truck, Utility truck and Gleason truck; Joy Brothers Motor Car Company, Packard and Packard truck; White Bear Auto Company, Columbus Electric, Firestone-Columbus, Lion, Lozier, Regal; Pence Automobile Company, Buick, Stevens-Duryea; Smith & Heberle, Chalmers, and truck; C. S. Neutson, Inter-State; Waldref & Odell Motor Car Company, Pierce-Arrow and Baker Electric; J. I. Case Company, Case car; Kissel Kar Company, Kissel Kar and trucks; Winton Motor Car Company, Winton; Northwestern Automobile Company, Ford; St. Paul Motor Vehicle Company, Thomas, Haynes, E-M-F, Flanders, Waverley Electric; Hudson Sales Company, Hudson; Borg-Wharry Auto Company, Abbott-Detroit, Mitchell, Hupmobile; Burney-Bird Auto Company; A. C. Thomson Carriage Company, Michigan; Northwestern Cadillac Company, Cadillac; Frederick E. Murphy Automobile Company, Mitchell; A. G. Bauer Auto Company, Luverne; H. J. Osborn Company, White car and trucks; Chase Motor Truck Sales Company, Chase trucks; C. V. Sales Company, Federal trucks; Morgan-Bond

Every Local Dealer is Represented at the Auditorium

Motor Car Company, Stegeman trucks; H. E. Wilcox Motor Car Company, Wilcox trucks; Conge Power Vehicle Company, Grubowsky trucks.

Accessories—Nicola, Dean & Gregg, Briction Manufacturing Company, Bartles Oil Company, St. Paul Fire & Marine Insurance Company, Manhattan Oil Company, Metal Shelter Company, Pine Oil Company, St. Paul Trunk & Bag Company, Gordon-Ferguson Company, Electric Manufacturing Company, C. J. Smith & Company, Dahl Punctureless Tire Company.

News of Other Local Shows

SYRACUSE, N. Y., Feb. 10.—All the spaces in the Alhambra and on the first floor of the Armory have been taken. Applications for spaces were made yesterday by W. E. Horton, Bergdoll and Marathon cars; Brighton Garage, Detroit; National Motor Sales Company, National; A. A. Ledermann, Pierce-Arrow; Buick-Keating, Buick. Captain Howard K. Brown, of Troop D, has offered the use of the Troop Armory, adjoining the main armory building, for the annex show. As the Alhambra has already been taken for the annex show this year the offer will not be taken till next year.

TORONTO, CAN., Feb. 12.—A commodious annex of all-steel construction finally met the approbation of the insurance underwriters who feared the erection of a temporary structure to take care of the overflow of entries for the automobile show to be held in the Armories here February 21-28. This building is rapidly nearing completion and will be quite ready for the decorators by the middle of this week. The surmounting of this formidable difficulty will put this show in line with the biggest shows of the year.

COLUMBUS, O., Feb. 12.—The committee on arrangements for the annual automobile show to be held under the auspices of the Columbus Automobile Club for a week beginning March 2, announce that practically all of the available space has been contracted for by dealers in Columbus and Central Ohio. Assurances are given that the show will be a success as all of the prominent makes will be represented.

BALTIMORE, MD., Feb. 12.—Sporting scribes of the Baltimore papers were guests of the press committee for the motor car show to be held under the auspices of the Automobile Club of Maryland, and the Baltimore Dealers' Association in the Fifth Regiment Armory, February 20 to 28. Ways and means for making this the greatest show ever held here were discussed. Governor Goldsborough will attend the show.

KALAMAZOO, MICH., Feb. 12.—The third Kalamazoo automobile show will be held February 22-24, at the Globe garage, on North Rose street. Every prominent maker and dealer in cars and accessories will be invited to exhibit, and buyers from all sections of southern Michigan are expected to be present.

LYNN, MASS., Feb. 12.—After a week that brought to the city many of the Boston dealers and a big attendance on the part of local motorists the Lynn automobile show closed its doors Saturday night. There were twenty-seven makes of cars represented at the show.

CHARLOTTE, N. C., Feb. 12.—North Carolina's first automobile show is scheduled for February 26, 27 and 28. The affair will be under the auspices of the Charlotte Automobile Dealers' Association, and the prospects for a successful exhibition are excellent.

Shows Have Quickening Effect on Trade

New York's Automobile Row Feels Impulse—Business Better

BUSINESS has been better all along Gasoline Row since the show season closed in New York than ever before during a corresponding period. Last year at this time there was a strong element of doubt in the general situation that is not present this year. Every class of car represented on Broadway is participating in the business, although naturally enough, the high-priced cars are not moving with the same rapidity as the lower-priced lines.

At the Overland, Oakland, Hudson and Ford stores it was reported that business so far this year had broken all records for the season; Chalmers, Buick, Cadillac and Maxwell are well ahead of last year, and National, Packard, Pope-Hartford, and other cars of high price are opening a busy season.

The extraordinarily cold weather has had the effect of reducing actual deliveries to comparatively small proportions, but from one end of the row to the other the order books show lists of flattering length.

In describing the situation W. C. Poertner, head of the National and Herreshoff agencies said:

"In this weather it is difficult to make deliveries of cars purchased, and while there never were so many customers for automobiles as there are this year, speaking for myself, I can say that I am rather glad that this condition obtains, for it is equally hard to get cars to deliver. We have done a splendid business since the show, but it will take a warm sun to make some of our customers take delivery on their cars."

Sales Manager Hirsch, of the Ford branch, declared that his company had sold 1,300 cars since the season opened and that up to the present no trouble had been found in getting cars to fill the orders. He said that the manufacturing company proposed to make 8 per cent. of its total proposed output of 75,000 cars in February and the present intention was to increase the production to 12,000 cars in April and the same number in May.

The Abbott-Detroit and Regal agencies report numerous orders with deposits attached, but few deliveries. Manager Botto says that the week following the show was excellent in its results, but the next week saw a slackening of business. Last week it was lively again and Mr. Botto predicts a record-breaking season.

Palmer & Singer have been moving quite a number of Brighton Sixes, and the Oldsmobile agency, according to President Larson, is selling from three to six Autocrats a week, some of which are for immediate delivery. Last Saturday they sold three cars after 4 o'clock in the afternoon.

The Chalmers agency, Carl H. Page & Company, is prepared for an even larger selling campaign this season than last. There was considerable scurrying around the country to get cars to fill New York orders last summer and this year the company has an increased allotment. According to the sales department, business is active.

The New York Moon Company, according to President Coghlan, is in about the same condition as other houses of its class, the orders for April delivery being far in excess of anything ever booked in advance by the company.

These examples cited indicate that 1912 is to be a good year in New York at any rate.

In the line of closed cars, some of the high-priced makes are moving nicely. Packards for immediate delivery are scarce indeed; Alcos, equipped in limousine and Berline bodies, were delivered last week on orders taken at the show, but the main business now being done is for April delivery. The Lozier sales force reports good inquiry and satisfactory sales, and the same

may be said for all the rest from whom no more definite figures could be secured. Solid trainloads of automobiles are on their way from Detroit and other manufacturing centers to New York.

Satisfaction Over Chicago Shows

CHICAGO, Feb. 12—National shows for the season of 1912 are over, the curtain dropping Saturday night with the closing of the commercial section of the N. A. A. M. display. While the end is greeted with delight by the trade in general, still there is universal satisfaction on the part of those who exhibited, for the shows of 1912 have been more prolific of business than have any of their predecessors.

"I am just counting up now on the Chicago show," said S. A. Miles, general manager of the N. A. A. M. this morning, "and it is most gratifying to report that the two weeks of shows in the Coliseum and Armory have been the best on record. The passenger car week, from the paid attendance standpoint was at least 20 per cent. greater than in 1911."

"Our greatest gain, though, was made last week when the power vehicles occupied the center of the stage. Our count shows that the attendance was 40 per cent. greater than in 1911."

"From my talks with the exhibitors I am satisfied that this has been the greatest business-producing show we ever have had. I know one truck maker who sold \$40,000 worth of cars to one concern, while in the accessory division I had one tire man tell me he had placed an order for \$40,000 worth of tires which gives promise of totaling \$75,000 before the man is through buying. It is the same way all through the show and we closed without finding a single dissatisfied exhibitor."

"It looks to me as if the commercial show of 1912 will tax us to our full capacity. This time we let each exhibitor state how much space he wanted and we filled two buildings, being compelled to leave out a few late comers. Next year I think we will have to limit the exhibitors as to space. I hardly expect the commercial show to have as many exhibitors as the passenger car section, for the power wagons require more room."

"As for the show proposition of 1913, we have set our dates a week later in order that we can get back to our original schedule. As the calendar has been turning, each year has seen us a day nearer the first of the year, and the jump of a week will put us back where we belong."

"The New York situation is a puzzle right now and cannot be straightened out until the Madison Square Garden matter is settled. At any rate there will be an N. A. A. M. show. It may be necessary to use two buildings, but whether the second will be the Garden or the Arena I couldn't say; that depends upon whether they tear down the Garden now or wait awhile. I expect the entire matter will be cleared up early in March. As to what the Automobile Board of Trade will do in the matter of shows, I could not say at the present time."

Sweet Satisfied with Show Results

William M. Sweet, general manager of the Motor and Accessory Manufacturers, has returned from the Chicago show enthusiastic over the business done by members of the association throughout the show season this winter.

"This has been the biggest and best show season since our organization," said Mr. Sweet, "and I am well pleased with present and prospective business." In his opinion the Chicago show was the most effectively decorated exhibition he had ever seen.

New Rotary-Valve Engine to the Fore

Valve Located Between Two Cylinders and Serves Both

HEEING the insistent call for silence, the Silent Valve Engine Company, of Connersville, Ind., has constructed a non-poppet valve motor of the rotary type. The valve is to be noted for its location between two engine cylinders which it serves, for its security against seizure and for the ingenious manner of driving the valve shaft at one-fourth engine speed.

The use of the silent type of valve necessitates practically no change in the design of the working cylinder of an engine, so that it could be installed on any four-cycle automobile motor, although the maker manufactures only complete power plants. The Silent Valve engine differs from other four-cycle, internal combustion engines only inasmuch as variation in design is necessitated by the use of its rotary type of valve. While this valve is fully original in design, students of the situation will find it to resemble the Itala construction in principle. Like that valve, it is a vertical plug serving inlet and exhaust for a pair of cylinders; like the Itala valve, it is driven at crankshaft speed and carefully lubricated and cooled. The most important characteristic of the Silent valve, however, lies in its being self-adjusting, so that it automatically takes up the wear caused by the continued use of the valve.

The details of the valve are shown in Fig. 1. Views I, II, III and IV illustrate the cone-shaped valve V, which is rotated at one-fourth crankshaft speed. View II shows a horizontal cross section through the valve body, which has two inlet and two exhaust ports, communicating with the respective manifolds and registering at predetermined times with the co-ordinate cylinder ports. The ample water jacketing is clearly seen in view I, where O is an indication of the oiling device which lubricates the walls of the valve.

The valve being tapered in form, a variable degree of tightness of the valve body against its casing is obtained, depending upon whether it is in direct contact with the latter or lifted off

its seat. To permit this variation the valve is connected to its rotating actuating rod by a pin P arranged in a roller R, which engages a grooved yoke or collar Y. This yoke has two lugs, in each of which a pin is located. The lugs are engaged by two shaft springs S1, which in turn engage two bosses B. The valve drive yoke D is assembled with the yoke Y and a reverse drive cam C.

If resting on its seat the valve is too tight in place to permit of rotation, but as the engine is turned over, the valve shaft travels slightly in advance of the valve, and the consequent upward thrust of the spiral grooves of the yoke Y raises the valve somewhat, lifting it off its seat. This allows the valve to be freely rotated. If, by the heat of the engine, the body of the valve expands, it is also lifted in proportion to its expansion, so that the possibility of seizure and consequent disabling of the engine is obviated.

The spiral grooved collar Y moves positively with the valve shaft only during the forward rotation of the engine, being driven by lugs on the sides of the valve driver D; the lugs engage studs which are located in the lower side of the collar or yoke Y. The latter remains inactive during the return stroke of the engine, when the reverse cam V takes up the work of rotating the valve through the correct angle, for which it is designed.

The valves are made of high-grade steel, heat-treated and accurately ground. Service has the effect of increasing the polish of the valve surface, since even poor lubrication and cooling do not cause the body to stick. The vertical valve shaft is driven by spiral gearing from a large pinion on the crankshaft, the one-quarter reduction time being brought about by the difference in diameter of the pinion and the spiral shaft-gear. Fig. 2 shows this pinion P which in service is attached to the crankshaft by means of screws engaging a flanged collar on the shaft.

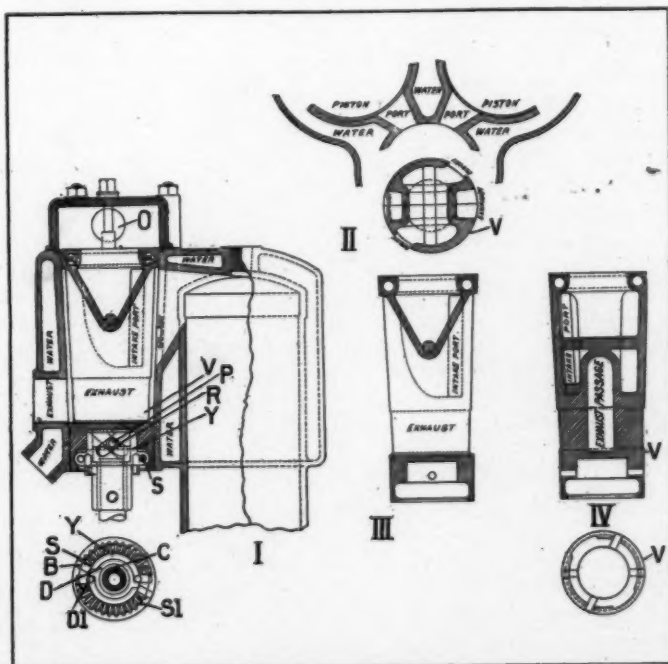


Fig. 1—Details of construction of the Silent rotary valve and actuating mechanism, showing tapered design

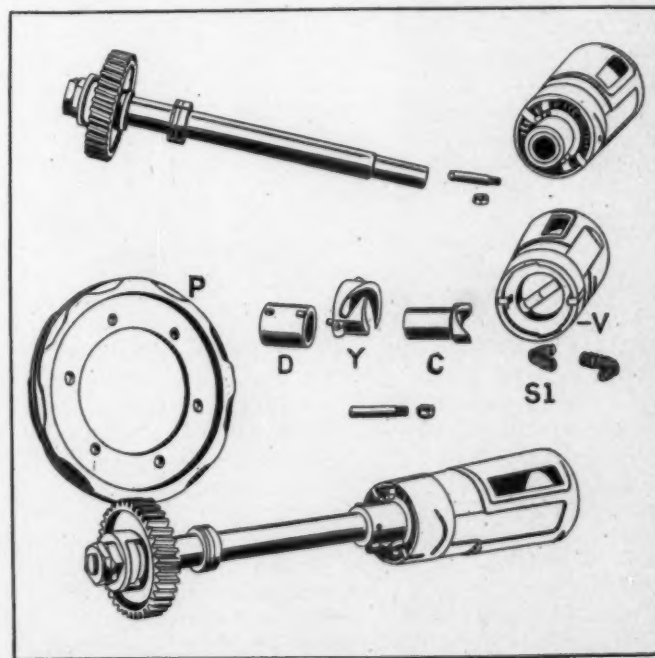
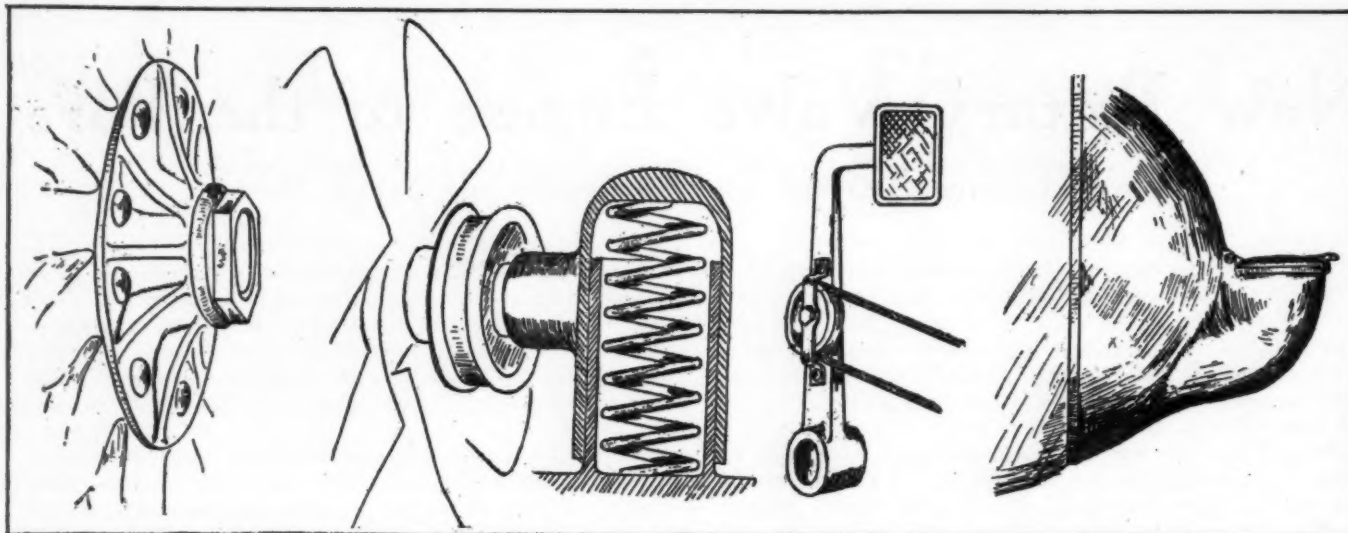


Fig. 2—Component parts of the Silent valve, and manner of driving it at one-fourth speed from the crankshaft



Ribbed hub

Fan belt adjuster

Brake equalizer

Rear axle grease filler

Peculiarities of Design on Foreign Cars*

Some Niceties of Detail Recently Adopted By Makers Abroad

THE majority of American engineers are familiar with the general design of foreign cars. There are a few minor details, however, which are not only interesting, but worthy of discussion. The only difficulty lies in picking out those which have not been described in the trade papers.

Cams—One of the most noticeable features is the broad-nosed admission cams. In fact, in several instances the foreign manufacturers are using identically shaped cams for both intake and exhaust and allowing the period of opening to be the same. In a few exceptional cases this is done by the closing of the exhaust late and the opening of the admission early, so that they overlap, which is a poor thing in making an easy starting engine. In most instances a greater lag is given to the admission valve, not closing it in some cases until 55 degrees to 60 degrees past center. Of course, most of their engines being small and running at high speed, this works out very well, and is also beneficial, as is well known, for motors in racing cars. But for large motors which run at comparatively slow speeds it evidently is not good practice. Most of the cams noticed had straight, though not tangential, sides, while a few were undercut, or laid out with a constant accelerating curve. Ease in grinding is very much in favor of the straight-sided cam, especially so when such methods of grinding are used, as is the case with one large concern which makes use of a surface grinder and turns the camshaft back and forth by hand, not grinding the nose at all.

Valve Lifter Levers—A number of engines have valve lifter levers between the cams and the tappets. These were used to quite an extent on American cars several years ago, but in most instances have been abandoned. There may be a revival of this practice, however, as great claims are made for it, as to advantage in producing quietly operating poppet valves.

Narrow Piston Rings—The use of rather narrow piston rings is very noticeable, especially on the Continent. While narrow piston rings are without question an excellent thing as far as holding compression is concerned, as the ring conforms to the slight inequalities of the cylinder, at the same time it is a very questionable proposition as far as durability is concerned.

Water-Jacketing Intake Pipe—The water-jacketing of the intake pipe occurs on a number of foreign cars. This is generally accomplished by making a double pipe of copper and necessarily increases the expense, but is without doubt a good thing.

Combination Strainer and Cooler for Lubricating Oil—Several manufacturers are using on their engines a combination strainer and cooler for the lubricating oil. Most engines have strainers for the lubricating system, but the idea of cooling the oil as it is continually circulating in the crankcase is something which has received very little attention on this side. One company in particular has a very simple device consisting of a ribbed sheet metal retainer made in the form of a radiator, which no doubt lowers the temperature of the circulating oil a number of degrees.

Taking Up Slack of Silent Chains—In the use of the silent chain for driving camshafts, which is very extensive, no good way seems to have been devised to take up the slack due to elongation. The chain manufacturers claim that the chain readjusts its pitch centers to a slight extent, taking up the wear by riding higher on the gear teeth. This is not sufficient, however, to be of much practical value. Some are using an eccentric around the bearing of the magneto gear, taking up the stretch of the chain by this means. Of course, this necessitates either the moving of the magneto every time this is adjusted or else allowing the magneto to get out of line with the driving-shaft, which is hardly permissible. Others use an idler gear to take up the elongation. A non-adjustable arrangement is practically out of the question when the necessary accuracy which is required for the chain is considered.

Equalizing Rotary Valve Pressure—An ingenious contrivance is used in the Itala company's rotary valve motor to equalize the pressure on this valve. This is accomplished by making a recess in the opposite wall and having a small hole, about 1-8 inch in diameter, pierced directly through the rotating member, so that during the explosive stroke the pressure is nearly equalized around the entire valve.

Chilling Inside of Cylinders When Cast—There have been a good many comments made on the Daimler's practice of chilling the inside of the cylinders when they are cast and finally

*Paper read at the Annual Meeting of the Society of Automobile Engineers by William Guy Wall, member of the society.

grinding them so as to eliminate most of the chilled portion. This no doubt has a tendency, as they claim, to make a closer grained casting, but seems rather dangerous in practice on account of the possibility of varying differences in hardness, due to different depths to which the iron would be chilled.

Drop Forged Pistons—The use of drop forgings, or, as they are called over there, steel stampings, for pistons, as used on the Lanchester engine, seems rather an expensive proposition due to the amount of machine work necessary, and also questionable as to the frictional qualities of the metal, and cannot be compared with what another manufacturer is doing in the use of malleable iron, which seems to be giving very good results and allows the piston to be made very light.

Carbureter in Bottom of Crankcase—The idea of placing the carbureter in the bottom of crankcase surrounded by oil, as is done on the R. E. P. aeroplane motor, looks as if it might be a possible solution of the great question of keeping the gasoline vapor at a uniform temperature.

Inclosed Valve Springs—The valve springs on a great majority of the motors are inclosed. In some cases the design is such as to make them readily accessible, while in others it looks as if it would be impossible to remove them when necessary.

Substitutes for Gear Shift Gate—Considerable ingenuity is being used in devising means to do away with the H-slot arrangement in shifting selective transmission gears. One firm partially accomplishes this by the use of a large cam arrangement in the transmission case, which, working with a single lever backward and forward, carries the sliding gears through all their different operations.

Narrow Face Gears—As is well known, the transmission gears in Continental cars are very narrow; especially is this the case when compared with those of English makes, which approximate more nearly our own. The narrow-face gear is very hard to make so that it will run quietly, as the pressure on the teeth has to be much higher than if the gear were wider.

Rear Axle Inaccessibility—In regard to the design of rear axles the inaccessibility of the gears when bevel gears are employed is very noticeable, as most of the gear cases are split through the center and the halves bolted together, so that there is no possible way of looking into these cases or adjusting the gears without taking the axle from under the car.

Elimination of Distance Rods—A noticeable thing is the elimination to a great extent of the distance rods running from the rear axle to frame; most cars driving through the springs with the assistance of a torque member, or, when this is not the case, through a center torsion tube surrounding the driving shaft and fastened by means of bolts or rivets to a cross-member directly back of the gearbox.

Brake Shoe Material—A great majority of manufacturers are using metal to metal brakes; some of them have adopted cast aluminum lined with cast iron working against iron shoes.

Ribbed Hub Flanges—An idea worthy of note found on some cars is the use of radial ribs on the outside flanges of

hubs to strengthen them. This no doubt fulfills its mission, but makes a hub which is very hard to clean and paint.

Wheel Bolts—The use of a bolt in each spoke where wood wheels are used is met with quite frequently. While this may be correct in theory, it has a tendency to weaken the spokes, due to cutting away so much of the wood.

Racing Experience and Axle Construction—It is very easy to see by inspecting the front axles of different cars which manufacturers have had racing experience to any extent. All of those who have been racing for several years past use steering arms without shoulders, whereas those who have had no experience in racing generally have shoulders on these arms where they go into the knuckles. The latter construction tends to concentrate the vibrations at one point and will eventually cause them to crystallize and break. The Renault Company has a very excellent design at this point, but fairly expensive, which consists of a long tapered square on the end of the arm, which projects through a corresponding square in the knuckle and is held in place by a large nut. The change from the round main portion to the square section is very gradual so as to leave no shoulder.

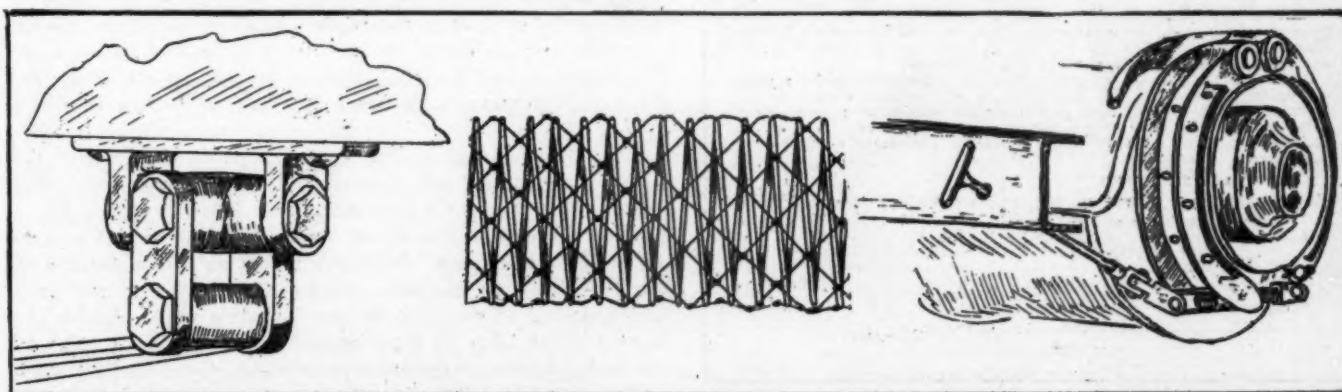
Radiator on Gasoline Tank Back of Engine—The Renault idea of placing the radiator back of the engine has been followed by a number of manufacturers on the Continent; whereas a few others have used this position in which to place the gasoline tank. The idea of the gasoline tank in the dash, however, is subject to considerable criticism on account of making it much more difficult to put coils and other equipment on this part of the car.

Size of Universal Joints—Most manufacturers are coming to the use of very large diameter universal joints in their shaft drive between transmission and rear system.

Radiator and Hood Shape—There also seems to be a decided tendency to make sharp pointed or oval fronts of radiators and to slope the bonnets at a very sharp angle so as to eliminate wind resistance. This is especially noticeable on two makes of cars which claim very high speed.

There are a great many details of cars made abroad which could be mentioned, some of them useful and others of questionable value; among them such things as: oil filler cast on back end of rear axle case; the use of herring-bone or double spiral main gears in transmission; brake adjuster on transmission brake made so that the adjusting rod goes through side of frame; fan belt tighteners; a cheap brake equalizer, consisting of cable running over a pulley on brake pedal; different forms of couplings for magneto; the idea of attaching speedometers to the driving-shaft instead of to the wheels; and a coiled spring covered with wire netting for use in filling the trimming on arm rests and where rolls are used in the upholstery.

Motor Starters Scarce Abroad—A word might be said in regard to motor starters, which seem to be extremely scarce. With the exception of two manufacturers using compressed air starters, one of them returning the compressed air from the tank of the cylinders, and the other using a small motor for turning the engine and a mechanical starter on one make of car, there seem to be no forms used.



Spring shackle

Spring roll for trimming arm-rests

Accessible brake adjuster

Taking Care of the Freight Automobile

How the Trucks Are Stored and Maintained in Modern Establishments to Get the Best Service From Them at All Times

NOW that the motor truck is being so widely used, definite methods have been evolved in regard to the methods of housing and maintaining it. It is quite natural that these methods should differ widely from those in vogue in taking care of pleasure vehicles, not only by reason of the different constructions, but also on account of the variance in what is expected of each machine. Few pleasure cars are used for more than six hours a day, and if some day or another the car is unable to run, there is little harm done, because it is a pleasure car. But the commercial automobile is here for business; business depends upon it and it is up to the truck to deliver the goods. The average truck of over 1-ton capacity works for at least 12 hours a day, and there are, roughly, 300 working days in the truck year.

Much being demanded of the truck, much in the way of care has to be expended upon it. The service given by a truck is directly proportional to the service rendered to it. This latter service consists of the equipment of the garage, where a truck is kept, and the labor spent on it each day or week.

The garage facilities for freight automobiles are not very unlike those in pleasure-car garages, excepting for slight differences in the arrangements and the equipment. A description of some examples of up-to-date truck garages in New York will best bring out the necessary and advantageous features in a properly laid-out and kept establishment.

One of the largest, and, at the same time, newest commercial garages of the metropolis is the eight-story building of the Hexter Motor Truck Company, 429 West Forty-second street, acting as the New York factory branch of the Gramm Motor Truck Company, of Lima, Ohio. This building has a basement and eight floors, each of an area of 75 by 100 feet. On the main floor the heavy trucks of 5 tons capacity are stored, while the light trucks are kept in the basement. The salesrooms and offices are placed on the floor above, with five additional garage floors on the other stories. The two top floors are devoted to machine shop and painting work.

This complete equipment is needed in conjunction with the up-to-date service the Hexter company gives to its clients. The capacity of the building is for 250 automobiles, the care of which provides work for a large number of men. Besides storing and cleaning the trucks, the company carries an account of the oil and fuel used by each customer, which is periodically sent to the owner of the truck, who is also kept informed of the general state of his machine, if his contract calls for regular inspection thereof. Such a contract may be drafted for any owner of any make of truck, but a specially elaborate contract goes with a newly bought Gramm truck. The guarantee of the Gramm company protects the buyer for 49 weeks of 6 days each, assuming normal working conditions. The difference between this time and the 52 weeks of a year is covered by the yearly overhaul work and 11 days during which occasional repairs are a fair expectation.

Efficient Gramm Service

The service given to Gramm trucks by the Hexter company consists in a regular inspection of the trucks when they return to the garage at night. Every Gramm truck is then carefully gone over and the necessary repairs made during the night, so as to keep the machine on the road every day. To help its customers in their business, the company employs six emergency trucks, the sole duty of which consists in taking on the work of trucks of the company's customers which require repairs taking more than a single night. When a truck is disabled on the road, it is hauled in and its load delivered to the owner's customer; the Hexter company also loans him one of its trucks for a nominal charge.

This special guarantee, Fig. 1, is printed on the back of the repair record for trucks maintained by the company. The dealer, when selling the car, states that its total cost is \$10 a day. If the customer is of the opinion that he cannot operate the truck at this figure, the dealer makes an arrangement with him by which the company operates the truck for the price named, paying all expenses thereon, including wages, repairs and insurance and doing all the necessary work with it. In this way the truck costs the owner \$10 every working day of its life, which averages 5 years. The depreciation, although it is included in the charge of \$10, must be written off on the books of the owner,

SPECIAL GUARANTEE	
In consideration of the purchase by hereinafter called the CUSTOMER, of a motor truck manufactured by the GRAMM MOTOR TRUCK COMPANY, of LIMA, OHIO, known by the factory number _____ from THE HEXTER MOTOR TRUCK COMPANY, hereinafter called the DEALER, the DEALER hereby	
Guarantees	
That, during the year next succeeding the date of delivery, the CUSTOMER shall not lose the use of said motor truck in business hours on business days for more than an aggregate of twenty-one days from any cause arising out of defects in material or workmanship in any part of the motor truck other than the body, chains, tires, batteries, lamps, horns or coils and not resulting from ordinary wear and tear, misuse or abuse on the part of the CUSTOMER, or its AGENTS, SERVANTS or EMPLOYEES, or from accident.	
This guarantee is subject to the following	
Provisos	
1. That the CUSTOMER will garage or store the motor truck with the DEALER, or at _____	
2. That no repairs to the motor truck of any sort will be made by anyone other than the DEALER without its consent;	
3. That the DEALER shall have the right to inspect the motor truck at any and all reasonable times except when it is in actual use;	
4. That the CUSTOMER will notify the DEALER with all convenient speed (by telephone if possible) of any injury to or defect in the motor truck requiring repair;	
5. That the CUSTOMER will promptly pay to the DEALER its proper charges for repairs and replacements not covered by this guarantee.	
6. That the work to be done by the motor truck is limited to carrying or hauling no more than _____ tons at a time, and the business hours shall not aggregate more than ninety (90) in any calendar week;	
7. That any breach by the CUSTOMER of any one or more of these provisos shall void this guarantee unless waived in writing by the DEALER; and any waiver by the DEALER shall not be deemed a consent to any subsequent breach by the CUSTOMER;	
8. Should the DEALER be required at its expense to make repairs or replacements under this guarantee, it will without charge to the CUSTOMER, and for the time pending such repairs or replacements, substitute for the CUSTOMER's use any other truck or trucks of an aggregate carrying capacity equal to that of the motor truck hereby guaranteed.	
THIS GUARANTEE EXPIRES _____ AND IS NOT TRANSFERABLE EXCEPT ON THE WRITTEN CONSENT OF THE DEALER.	191 .
Signed in duplicate at New York	
DEALER {	HEXTER MOTOR TRUCK COMPANY
By _____	President.
Accepted:—	
.....	CUSTOMER

Fig. 1—Special guarantee of the Hexter Motor Truck Company to buyers of Gramm trucks



Fig. 2—Lineup of White trucks in the Sloane garage

thereby paying the dealer for his trouble in connection with the handling of the truck.

A number of illustrations show the equipment of the garage of W. & J. Sloane, the carpet makers. The garage is located at Twenty-ninth street and Eleventh avenue, occupying two floors of 60 by 180 feet each. At the present time it houses sixteen freight automobiles used by the Sloane company. Each truck is handled by the same driver as long as the man remains in the employ of the company, although the men take their cars over various routes. Jersey deliveries are made by a 1 1-2-ton truck, while a 3-ton truck is used to cover Brooklyn, and a similar vehicle the Bronx. Four trucks run over Manhattan, three of them having a capacity of 3 tons each and one being of 1 1-2-ton size. In addition to these machines there are four 4-ton electric, which, in combination with two 3-ton trucks, serve for wholesale shipping purposes. A 3-ton furniture van is also used. Furthermore, there is a 3-ton shuttle car operating between the store on Broadway and the garage, which is conducted in connection with the warehouse on Twenty-ninth street. A salesman's 500-pound wagon and a 1,500-pound special delivery car complete the equipment of the company. All the vehicles, with the exception of the four General Vehicle electrics, are made by the White company, of Cleveland, Ohio.

Features of Sloane Garage

The garage itself is built fireproof, and in addition to this feature is equipped with an efficient sprinkler system. The sprinkler net is seen on the ceiling in Fig. 3, while Fig. 4 shows the valve mechanism connecting the pipes with the city mains and regulating the pressure in the pipes. As is indicated in this illustration, the valve is located rather high to keep it out of the way and in a comparatively foolproof location. Access to the mechanism is by means of an iron ladder.

When the trucks come into the garage they are lined up, and in the morning their tanks are refilled with gasoline and oil and

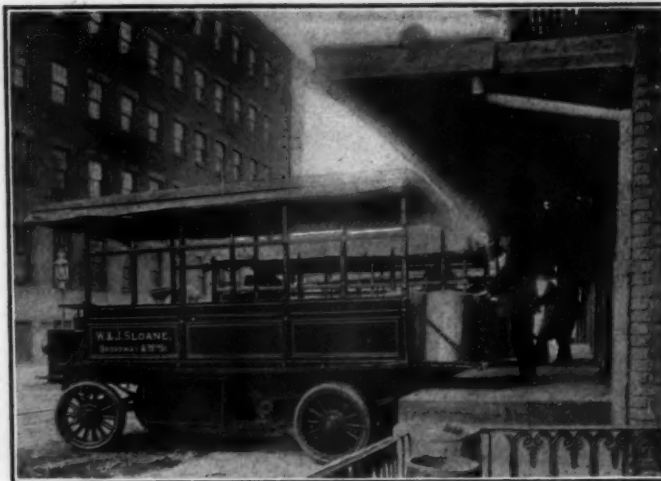


Fig. 3—View of the platform in front of the Sloane warehouse

tuned up to whatever extent this is necessary. This preliminary work takes about one-half hour, after which the drivers get on their trucks and line them up before the loading platform of the warehouse. This process is shown in Fig. 6; it illustrates the modern principles of engineering as applied to the conservation of human energy. The goods are brought out of the warehouses on sturdy hand trucks, and when these are pivoted on their wheels, the packages are easily slid on the rear portion of the trucks. A roof structure extends sufficiently far over the platform to shield the goods in case of inclement weather and to make it easy for the men to move about as much as needed.

The machine shop is located in the rear of the garage and equipped with all machines necessary in repairs done on the trucks of the company. Fig. 7 shows the interior of the shop, which is lighted by daylight. The parts storeroom, containing the most frequently required parts, is located next to the shop. In front of the shop door a pit, 3 feet long, 3 feet wide and 5 feet deep, is located. In repairing part of the under side of a truck the man to whom this work is assigned gets down into the pit, where he can do his work standing and with comparative ease.

Among the indispensable adjuncts of a modern garage is a small traveling crane. There are a multitude of applications for it; there may arise the need of transporting some heavy part from the machine shop to the chassis or *vice versa*, and especially when care must be exerted in putting the part in place, the traveling crane will prove itself very useful. One of its principal applications is shown in Fig. 5, where a motor is being reinstalled in the chassis. The motor here illustrated had first been taken out of the chassis and brought to the machine shop, Fig. 8, to be worked upon and tuned up. After this operation was finished the engine was suspended on the chain of the crane, which was then rolled to the chassis. In this particular case the advantage of the crane is easily seen, since it permits of keeping a chassis in any place on the machine-shop floor without making

Record of repairs made on truck No. as per guarantee

H.M.T. Co. notified		Truck arrived at H.M.T. Garage		NATURE OF REPAIRS MADE	Repairs Completed		Truck Left H.M.T. Co.		Total Time in H.M.T. Garage	Signed
Date	Time	Date	Time		Date	Time	Date	Time		

NOTE.—No Entries to be made on this form except by Hexter Motor Truck Co. Employees. No Repairs will be made unless this form is presented.

Fig. 4—Blank for recording the repairs made on Gram truck by the Hexter Motor Truck Company



Fig. 5—Putting a motor in place by means of a traveling garage crane

the work of bringing the motor to the shop especially difficult.

The interior illustrations of the garage, for instance (Fig. 8), show a pipe system on the walls of the place. These pipes are used to carry the steam which is invariably used to heat garages. Power and light, however, are electric, the current being bought in most instances from the Edison Company, of New York.

Two types of sheet are being used by the Sloane garage superintendent to keep an exact record of each car's performance. One is a daily card on which the number of the car, name of the driver, quantity of gasoline and oil, and the distance and speed of travel are noted, while the second paper is a sheet on which accidents are reported, with every detail relating to its occurrence and the damage done to truck, driver or outsiders.

After this description of the garage facilities for trucks some remarks on truck service rendered by several of the leading truck makers to their New York customers are offered herewith. They show how the practices vary with the different experiences and opinions of the manufacturers, and how satisfactory service may be given in many ways.

Recognizing the necessity of placing machines in the hands of unskilled men in modern business or manufacture, the tendency has been up to quite recent times to make foolproof machinery, which cannot be deranged by a workman, no matter how inexperienced he may be in his line of work. After pursuing this practice for a number of years, makers as well as users of machinery have come to the conclusion that a perfectly foolproof machine is impossible to construct, but that the solution of the problem lies in the elimination of the fools. Manufacturers of freight automobiles are now of the opinion that a truck to give good results should be handled by a careful driver, alert to the requirements of the machine.

It is on account of these considerations that an extensive service is now being placed at the disposal of truck owners by the makers of the prominent freight automobiles. This service is so organized and laid out as to materially decrease the running

and upkeep expenses of the owner if he utilizes the experience offered to him by the manufacturer through the latter's inspector.

The Saurer branch of the International Motor Company has inaugurated an elaborate service system for the New York territory. The service offered by this concern to its clients consists in a regular inspection of the Saurer trucks by competent inspectors. These men call upon each customer about once in two weeks, and, looking over each truck, make a careful examination of a part of it. For instance, an inspector may call one day and look over the motor, submitting it to a rigid inspection. This does not consist in giving it a road test of a few miles and then pronouncing it to be all right. The inspector makes the motor run under load as well as without it, and carefully watches for symptoms of future trouble. The slightest knock or the smallest indication of disorder is traced to its source and remedied before it has an opportunity to develop into a serious evil. In addition to this work he looks over the connecting-rod bearings, the carbureter adjustment, perhaps over the valve springs and so forth, so that when his examination is past, he knows exactly whether anything is at fault with the motor or not. If a small repair has to be made, he makes it, showing the driver what to do in a future case. While he inspects the performance of the truck on the road he calls the attention of the driver to the latter's mistakes in handling the truck and gives him whatever pointers seem to be necessary.

New Saurer Service System

On his next inspection, a couple of weeks later, the inspector may look over the steering gear and the transmission, as well as the clutch. Here, too, he makes what minor repairs are needed and instructs the driver; if another man cares for the car while not on the road, the inspector instructs him also in regard to the machine's requirements. If there are none but minor repairs to be made, the inspector makes them free of charge or orders the truck to be driven to the service department, where the repairs are made gratis.

The next call of the inspector may take in an examination of drive and axle. The same detailed process as in the case of the motor is used, and the inspector misses no opportunity to reveal to the driver the puzzling peculiarities possessed by a truck in the eyes of a former horse-and-wagon man. Incidentally he may look over the motor and clutch and see whether the driver has observed his admonitions or not; in the latter case the service department of the company calls the owner's attention to the fact that his truck is not being treated as it should and offers to supplant the driver by an experienced man, or break in a new driver.

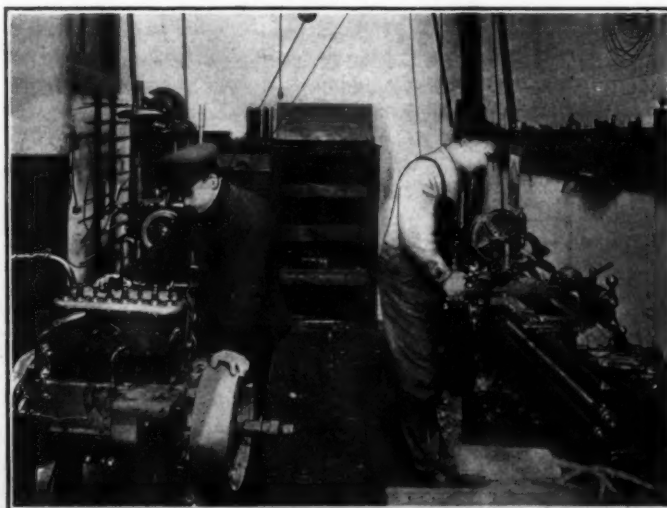


Fig. 6—Inside of the machine shop in the Sloane garage in New York

All this service is done without charge to the customer, as the principal endeavor of the company is to keep all its products on the road. The manufacturer is convinced that by following up the service policy as it now obtains this end may be arrived at sooner or later. The advantage arising from such a state of affairs is obvious in the case of the user, but just as great for the maker who avoids the unprofitable repair work which would otherwise come in.

It may, however, become necessary to make a repair on a truck in spite of all service rendered to its owner. This necessity may be due to either one of two causes; either the truck has been ill treated despite the advice of the inspector to driver and owner, or it has met with an accident, which will often happen despite the utmost care. In either case the truck is taken to the service department where a repair is made as rapidly as possible. If it can be done, the truck is turned in in the evening and all hands are rushed to finish the work before the truck is needed at daybreak, for the overtime thus consumed will, in the majority of events, amount to less than the loss sustained by the owner if the truck is not in condition to undertake and carry on its regular work.

The Packard Motor Car Company's customers are also afforded an efficient system. This company has different ideas about how best to serve a client, and its service department is organized accordingly. The managers consider service very much as a strict enforcement of the guarantee, and it is their aim to use the ounce of prevention before it is necessary to apply a pound of cure. The Packard trucks, of which there are about 300 in and around New York City, are each inspected once a month.

The Packard company maintains a large service building in Long Island City. The location of the department is in close proximity to Manhattan, so that a truck may lose as little time as possible in coming out to the service building. Each truck owner arranges with the company for a certain day of each month on which the truck is taken out to the service department and given an inspection of four hours. Minor adjustments are made without charge to the owner, either by a member of the Packard service force or by the driver under the instruction of one of the men in the Packard shop.

Packard Has Drivers' School

Formerly the Packard company used a different system of service to its customers. The inspectors of the company called on the clients and if they did not meet the truck in the garage they had to follow it up till they found it on the street. Hours were lost in this way, and the company believes that the present service system is of advantage to both the customer and the company. In addition to the rendering of the service described, the Packard people maintain a school for truck drivers in the



Fig. 7—Repairing the motor from underneath. The man is at ease in the pit

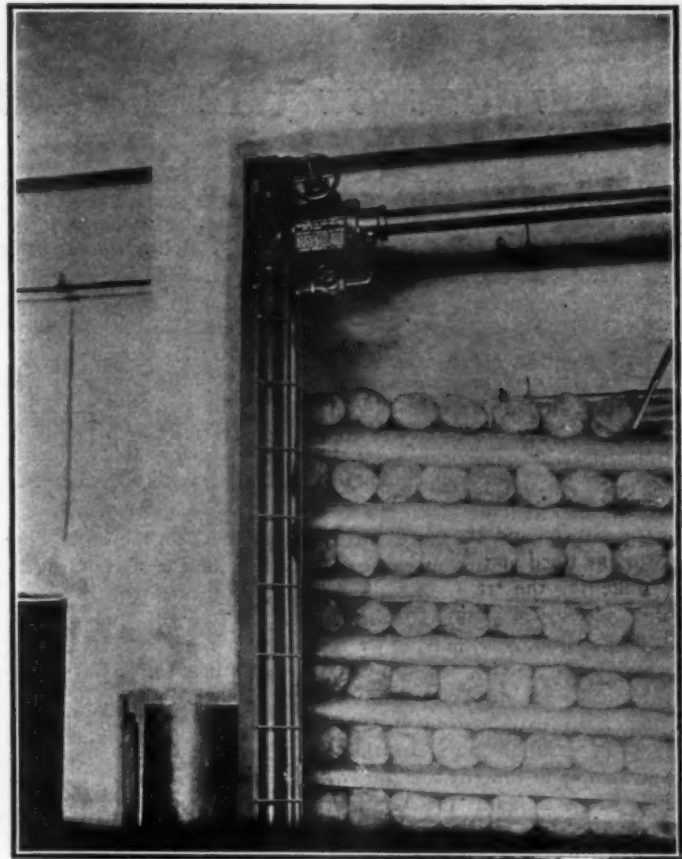


Fig. 8—Showing the high location of the sprinkler valve to prevent meddling

Long Island department. In this school the driver of a Packard truck is given free tuition and submits to an examination before he leaves the school, which is open for a week each month. If the owner so desires, the driver may be instructed, free of charge, once or twice in addition.

The Alco service is organized on a similar basis. Alco service comprises adequate inspection and immediate repair of any defects in the trucks. The company has not finished the construction of its new service building as yet, but its customers are not neglected. It does not maintain a regular inspection, but the drivers of Alco trucks are instructed to telephone to the company's service department if any trouble arises. In this case an inspector is immediately sent to the place where the truck is housed or stands and the trouble is speedily remedied. If the defect repaired falls under the one-year guarantee of the company the work is not charged to the customer, but if it is due to damage done by unskilful handling of the car and not to faulty material or poor workmanship the customer is made to pay for the inspector's work as well as for the part replaced.

A point worthy of mention is that the service rendered by all companies to their customers comprises the full instruction of drivers for the trucks. This practice benefits both the maker and the user of the machine in that the truck will serve its owner without trouble if well treated, and, on the other hand, the service department is relieved of such work as would result from careless handling of the machine.

The advantage of a competent driver is very obvious, and, while the construction of modern trucks is such that with a minimum amount of instruction a man may be educated to its requirements, one fact deserves criticism. This is the lack of standardization in truck control. At an ideal stage of manufacture a driver knowing how to handle one truck should know how to handle every truck; and there is no doubt that the consequent advantage of the user would be paralleled by an increased business of the manufacturer.

Digest of the Leading Foreign Journals

Touching on Changes in Army Trucks, New Front-Drive Dumping Truck, Alloys in Bronze, New Dietrich Valveless Motor, Etc.

SOME CHANGES IN ARMY TRUCKS—After a trial of an army motor truck with trailer for the German army, certain modifications were proposed by the trial commission and will no doubt be adopted by the ministry of war. The accelerator is to be dispensed with. A self-starter is to be secured to the dash and must be actuated by electromagnetic or equivalent means. The gear speeds must be 3 to 4 kilometers per hour for the reverse and the slow speed, 5 to 8 for the second, 9 to 13 for the third and not higher than 16 kilometers on the high. The brake for the trailer must be operated from the driver's seat, the action being transmitted from a rotary shaft through a system of tension rods extending under the middle line of the truck to the trailer, but not by compression rods or wires. The coupling on the trailer for attaching another trailer is to be abolished. A cut-out is again to be provided for the exhaust muffler (it had been abolished before), as it has been found that the gain in power which may be secured by its use may be valuable in time of war, but it is to be screwed down tight in time of peace, so as to obviate breach of the police regulations. Fans must have a circumferential retaining ring, as it has happened that a fan blade has flown off and has injured the radiator. Chain casings must be removable and each truck is to be supplied with a set of chain fenders to be used instead of the casings under war conditions. The width of the rear tires is to be 28 centimeters, as before, and these tires must be either of the twin type or divided into two parts by means of a circumferential groove. The ignition is to be by magneto, the timing by hand; and the latter provision is causing some comment in view of the reliable character of recent devices for automatic spark timing. A complete spare set of ignition apparatus must be furnished with each truck—From *Allgemeine Automobil-Zeitung*, January 26.

Panhard Front-Drive Dumping Truck—A provisional idea of the main features in the front-driven truck with tipping box

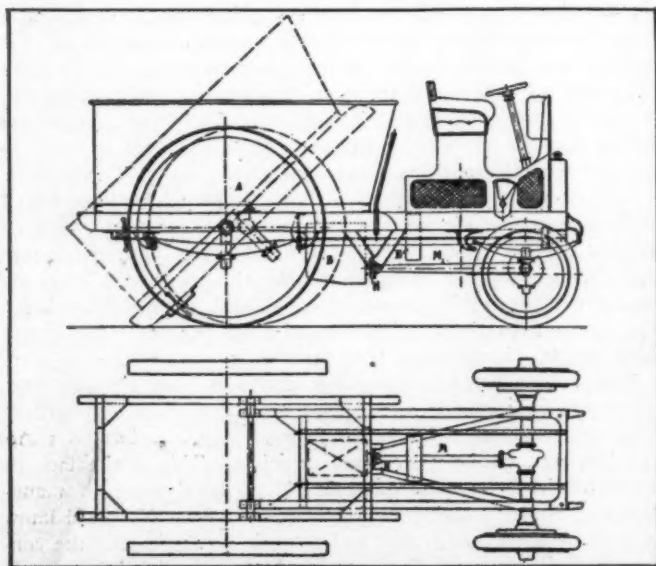


Fig. 1—Showing features of Panhard front-driven tip truck

which has been placed in the market by the Panhard and Levasor company may be gained from Fig. 1 and the description of this vehicle offered by *La France Automobile*. The motor is under the seat and drives through the clutch E the upper shaft in the change-gear box B, the lower shaft of which drives the front axle through universal joint N and shaft M. A special frame unites all these parts and is mounted on the vehicle springs and the front axle in the usual manner and in the rear is journaled on the tip shaft A in the rear frame. The front axle is constructed as the ordinary rear bevel-gear-driven axle, excepting "that each wheel is driven by 'ball gears' to admit of free steering of the wheels." (The drawing seems to indicate that the end of the axle—the wheelshaft housing—is internally pivoted in a bearing ring in the wheel hub). The rear frame is mounted on the rear axle in the usual manner and is connected with the front frame through the tip shaft A and by the overlapping side reaches, but the rigid connection is easily unfastened and, when this is done, the load box can be tipped by simply driving the front part of the vehicle backwards against the tip shaft which lies higher than, and in front of, the rear axle. Naturally the rear wheels must be blocked or braked during this operation. A forward movement of the front part similarly brings the tip box back into its horizontal position. This system is said to have been patented.—From *Die Automobilwelt*, January 26.

Influence of Alloys in Bronze—In an extensive experimental study of the modifications produced in the properties of copper-tin bronze by the addition of the more important metallic and non-metallic alloys, Hanns von Miller brings to light many facts of practical interest for the metal-casting industry, as well as for the casting of works of sculpture, which he has especially in mind in his investigation. He selects as a basis for comparison the bronze composed of 92 parts of copper and 8 parts of tin, which is usually employed for bronze statuary, as it possesses that property of expanding its volume considerably at the moment of solidification which is of importance for obtaining sharp casts of the minutest details. After this expansion just below the fusion point, the bronzes contract by cooling, more or less, according to their composition; and at a lower temperature, which also varies considerably in the different alloys, there is a halt in the shrinkage—indicating critical action in the crystalline formation of the molecules and corresponding to the recalcence point in steels—whereafter the contraction of volume goes on. These phenomena, expressed accurately in the form of coefficients of expansion and contraction, besides the density of tensile strength and the working qualities, form the subject of the treatise, which is illustrated with a curvograph for one of each group of alloys and photo-engravings of the experimental apparatus. The metals which form a eutectic crystalline combination with copper and tin are chiefly considered. These are zinc, lead, antimony, aluminum, silicon, bismuth, tungsten and manganese. But cobalt, iron, nickel and phosphorus are also taken into account.

Contrary to what is usually assumed, the admixture of phosphorus was not found particularly harmful. In a sample containing 1.36 per cent. of this substance the expansion at solidification was found very small, to be sure, but the contraction,

the strength and the workability were about the same as in the normal bronze. The marked shrinking which occurs in cast iron with large phosphorus content has thus no counterpart in bronze. In iron a 1 per cent. admixture of manganese is said to increase the contraction 26 per cent., but two experiments with bronze containing 3 and 5 per cent. of manganese showed that, also with this alloy, iron and bronze behave differently. The contraction was very small, and the expansion below the fusion point likewise, while strength and hardness were both increased. The results of the investigations are summarized as follows by the author:

The shrinkage of bronze can be notably reduced so long as it contains tin only by a considerable (10 per cent.) addition of zinc. Cobalt, aluminum, silicon, iron and nickel increase the shrinkage.

The tensile strength is raised by cobalt, nickel and manganese and considerably lowered by antimony and much zinc.

Workability, with reference to drilling, cutting, chiseling and graving, is much enhanced by antimony and lead (up to 2 per cent.) and is reduced by iron and nickel.

The formation of a patina is retarded by admixture of zinc and aluminum, while cobalt, nickel, antimony, iron, silicon and phosphorus accelerate it (in some instances changing the shade of coloration).

Solidification comes at a considerably higher temperature in bronzes containing tungsten, nickel, iron, manganese and cobalt than in ordinary bronzes, none of these, excepting manganese, forming a eutectic solution with copper-tin bronze.—From treatise by Hanns von Miller in *Metallurgie*, January 22.

Steering Dirigible Balloons by Wireless—At a demonstration conducted at Circus Busch in Berlin, on December 19, Engineer Bohler, of Hamburg, made it clear to those present that he was able to direct the flight of a dirigible balloon, up and down and to the sides, by means of an ordinary Marconi wireless sending apparatus, the balloon being equipped with a device which by switching could be fitted to receive fifteen different wave lengths. It had a lift of 3 kilograms, 4 propellers and a motor driven from a storage battery. Its envelope was made of metallized cloth, as it had been found that this greatly facilitated the receiving of the wireless directions. It was also shown that explosives could be dropped at a predetermined moment and over a predetermined spot by wireless direction, and that no danger of explosion of the balloon gas was caused by the high-tension waves or by electric currents of up to 35,000 volts, as produced by an induction apparatus of 60 centimeter length operated with a Wehnelt interrupter. Yet it was perfectly visible how the sparks fluttered around upon the metallized cloth.—From *Allgemeine Automobil-Zeitung*, January 26.

Dietrich Valveless Motor—Some of the features in the valveless motor adopted by the Lorraine-Dietrich company are shown in the accompanying vertical longitudinal and cross-sections, Fig. 2, from *La France Automobile*. In the reciprocating sleeve T the openings O and O' register, in due time in the cycle of operation, with the openings A for admission and E for exhaust, both in the walls of cylinder C. The sleeve is reciprocated by means of a cam disk P mounted upon the crankshaft so as to serve two cylinders, as plainly shown in the longitudinal section. The roller stud D which is integral with the sleeve is guided in the cam grooves R and R'. The cylinder head F is removable and machined all over. The ring S secures its tightness, and, to obtain a watertight joint for the circulation of the cooling water, the head is set into the cylinder with screwthreading and cone fit. A vent W connects the space in which the sleeve moves with the atmosphere, to obviate air resistance of its movements.—From *Die Automobilwelt*, January 26.

An Example for the Militia—In order to facilitate the transportation of the general staff in case of war, the military

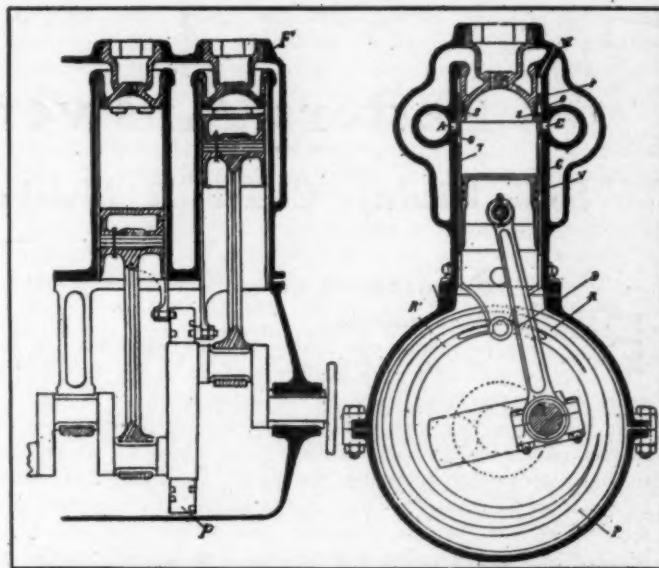


Fig. 2—Longitudinal and transverse sections of Lorraine-Dietrich

government of the city of Paris has decided to give those who own automobiles of medium power, especially between 12 and 30 horsepower, and who are able to prove their ability to perform in person all work necessary for the maintenance of the mechanism and the tires, a special opportunity to discharge their military duties in an agreeable manner. To that end each of them must sign an agreement with the authorities that he will sell and turn over to the state, the moment a mobilization of the forces is called, the vehicle described in his application for the privilege of this form of service. And for all maneuvers he and his vehicle must be at disposal, the vehicle to be conducted by himself under orders from his military superiors.—From *Omnia-Locomotion*, January 27.

Lateral Cushioning—A Hispano-Suiza racing car was equipped successively with good wood wheels and with Rudge-Whitworth wire wheels. The wood wheels left 6 millimeters between the spokes and the flange of the hub, while the wires of the metal wheels passed within 2 millimeters from the same flange. After a high-speed drive the wood spokes had been cut into by the edge of the flange, while the wire spokes showed their enamel unscratched. It is thus seen that the spokes of a wood wheel vibrate enormously. In the case cited, the vibrations exceeded 12 millimeters, while that of the wire spokes was certainly less than 4 millimeters. [At the same time, the experiment also seems to show that the wood spokes afford a protective lateral cushioning effect which it has not yet been found practicable to incorporate in wire wheel construction.—Ed.]—From article arguing for wire wheels by Charles Faroux in *La Vie Automobile*, November 25.

Recent European regulations have tended to make the formalities to be observed in crossing the boundaries of the different countries more onerous than they were before, and as a result an agitation has been set on foot among the automobile publications for the issuance of international driving permits and a radical abolition of red tape. It is proposed to call a conference in France to obtain a basis for simplifying the conditions. It is maintained that, apart from the customs regulations, the home driving permit should be honored in the foreign country.

The French Government has decorated Laurent Séguin, who, together with his brother, is responsible for the construction of the Gnome aviation motor, with the Cross of the Legion of Honor. "Finally," comments *L'Auto*, averring that the Séguin brothers, more than any other individuals, released aviation from its swaddling clothes.

Letters Answered and Discussed

Some Inquiries Concerning Mufflers, Clutches and Cracks in Cylinders

Requirements of a Muffler

EDITOR THE AUTOMOBILE:
[3,025]—Would you kindly tell me what are the requirements of a good muffler, outside of the fact that it must deaden the noise made by the exhaust of the motor? I have noted the fact that there are so many different types of muffler on the market that I have become somewhat curious as to the factors which enter into the design. I am sure there must be a number of them, for those on the market at the present day seem to be more or less expensive, and, unless this expense is justified by some corresponding benefits, I do not see the use of purchasing one of the more expensive kinds. TECHNICAL.
Paducah, Kentucky.

When the importance of having the back-pressure reduced to minimum is considered, there is small wonder that various means have been taken to produce a muffler which will not only silence the motor but will also prevent the excessive back-pressure which is so fatal to the power output. When the gas in the motor is exhausted it must overcome the resistance of the pressure which is found in the exhaust line. Otherwise the motor would not be able to exhaust the products of combustion in the time allotted for it to do so. Should the terminal pressure at the end of the power stroke be 40 pounds and the pressure in the muffler and other parts of the exhaust line be 30 pounds, it is evident that the gases will have an effective exhaust pressure of but 10 pounds, although there is a pressure of 40 pounds which has not been used for propulsion. The corresponding decrease in power may be readily appreciated. By the ingenious use of baffle plates the pressure of the gases issuing from the motor is gradually reduced and the noise is eliminated.

Likes Easy Starting Device

EDITOR THE AUTOMOBILE:
[3,026]—Under the heading "Letters Answered and Discussed," there was described, in letter number 3,005, on starting a car when cold, a device used by R. J. P., of Troy, N. Y. I wish to state that since seeing this in THE AUTOMOBILE, I have tried it several times and find it very successful. My motor was not as cold as that of R. J. P., but I have continually had trouble in getting it started, even when I have kept a little fire burning in the garage. When using this device I have turned the engine over several times by the gas from carbide alone. There is one suggestion I would like to make in connection with this device and that is, since it is rather hard to have the opening for the rubber hose of the correct size, rubber cement could be poured around the hose where it enters the can or it could be wrapped in tire-tape. It would also be well to advise those who use this device, to allow the hose to enter the can for a distance of only 1 inch. In this way the end of the hose will be kept clear of the water and there will be no possibility of having it drawn up into the motor. J. F. DAVIS.
Oil City, Pa.

This device, which was described in the issue of January 25, was made from a friction-top can, a piece of rubber hose, a lump of carbide and a gill of water. A hole is cut in the top of the can and the hose inserted after the water and carbide have been placed therein. The end of the hose is then placed in the air intake of the carburetor and the motor cranked in the usual manner. Owing to the great range of mixture through which acetylene is explosive, the car will start in any weather.

Raps Carpenter's Clutch

EDITOR THE AUTOMOBILE:

[3,027]—Considerable work is being done here as well as in England on fluid clutches. This work will be a total loss in most cases because of want of proper understanding. It is perhaps undertaking a great deal to take issue with these several men; but I am sure of my ground and I hope for a battle royal.

In answer to J. C. Carpenter discussing fluid clutches, will say that my lengthy experiments have led me to a somewhat different conclusion: One fluid clutch I tested had no valves or by-passes and therefore no "tortuous passages responsible for heat." At slippage under load the heat of the fluid clutch would be so great that it could not be touched. I believe Mr. Carpenter is mistaken when he states, "this clutch is capable of complete engagement or disengagement." A fluid clutch is never fully disengaged because of the drag of its moving parts; nor can it be fully engaged because it will leak under pressure and to leak means a movement between the driver and the driven in a fluid clutch. He states, "It neither grips nor slips." It will always slip, although it may be negligible when on full, "but gives a cushioned drive at all speeds." A cushioned drive at full speed Mr. Carpenter has eliminated in his previous statement when he completely engaged his clutch.

Air as a fluid in the clutch is too elastic and leaks too easily; Mr. C.'s fluid clutch is virtually a rotary pump and will have considerable internal leakage. Nor can the stuffing boxes be kept tight, causing external leakage; a heavy oil is usually employed and naturally, oil being not compressible, no cushion effect will be noticed other than that due to leakage.

I have serious doubts whether Messrs. Thurston or Trautwein had the good fortune to investigate fluid clutches; such passages as quoted are hardly applicable here. Mr. Thurston's remarks may be suitable to lead a baby out of the woods; I do not wish to say that his observations led him to conclude wrongly, but I wish to say that his observations were limited. Trautwein, I think, was equally unfortunate. In the fluid clutches of my building there was no room for counter currents at the point where the work was being done, nor have I discovered any such tendency in the many fluid clutches disclosed in the patent records of about 20 years ago. At that time the control of street cars was attempted with devices of the order Mr. C. shows or an entirely different class such as the Renault or Hele-Shaw devices. To quote one example: Atwood's fluid clutch was used on street cars in Philadelphia (the series parallel control was found later and universally adopted). Does Mr. C. seriously believe that it consumes no power when he compels a fluid to pass a narrow gap under pressure? If Mr. C. will consider his fluid clutch a rotary pump, which it really is, as stated before, keep his housing stationary and drive his rotor, will he then still assert that it requires no power to send his fluid through the controlling valve, nearly closed and at, say, 100 pounds pressure? If he were then to use his fluid over and over again, he would note an ever-rising temperature and this is the principal loss in all fluid clutches.

I do not wish to be understood that I think that fluid clutches cannot be successfully employed; as a self-contained starting device the fluid clutch has no peer.

As a device of intermittent service for purposes of speed reduction it excels its competitor, the dynamo-motor device, as it is not so costly as the latter and probably nearly as efficient.

Speaking of the Renault, Hele-Shaw, Manly devices and the like, those devices are no fluid clutches at all. I have called them hydraulic-ratio-drives. They do the same service a change gear device does, but are very expensive and of extremely low efficiency. In theory nothing better could be desired than these last devices. Any number of speeds, and a positive drive, not a slippage.

I do not wish to be understood to say that hydraulic gearing is and will be an impossibility (commercial), but efficiencies much higher than now obtainable will have to be brought out before those devices have a living chance in the market.

New York City.

P. G. TISMER.

Cylinder Cracks Under Overload

Editor THE AUTOMOBILE:

[3,028]—Will you please give me the best information possible concerning the cause of the cracking of two cylinders on separate engines of the same type?

I have two electrical generators directly driven by gasoline engines of four upright cylinders about 6-inch bore, 7-inch stroke, being four-cycle, water cooled.

These cylinders are T-head type with the spark-plug over the pistons and the engine moves at 560 revolutions per minute. The generators develop 25 kilowatts at 115 volts.

The first set, installed indoors, had been running about 10 minutes with an 80 per cent. load when, about six times in the next 20 minutes, a 40 per cent. overload or more was caused by a short circuit, the overload switch on the main line being tripped each time. Every time the overload came on the engine slowed down very much, as shown by the dimness of the lights due to drop of voltage. The last time the overload came on one of the water jackets cracked vertically down about 5 inches from the top. The crack started at a lug cast between the cylinder and the water jacket and was in the water jacket alone. Examination showed that the cylinder was not cracked and micrometer calipers showed that the cylinder was not enlarged. The water pressure was normal and the radiator was hot from top to bottom with water boiling out through the overflow pipe at the top of it. A few minutes after this a second set (in another building and entirely separate from the first) was started and in about a minute the load of the first set put on. In about 5 minutes more the same overload came on and the overload switch failed to go out and this set had exactly the same accident happen. All conditions as to water location of crack and length were the same.

My explanation is as follows: These sudden overloads were like a sharply applied brake, slowing up piston speed and rapidly heating up the water. Each slowing up of the engine applied a hammer blow through the lugs to the water jacket and when one reached its elastic limit it cracked. The water acted as a cushion for the cylinder but the water jacket had no such protection. Hence it cracked. The space between the water jacket and cylinder is formed by a core, which is dry compared with

the green molding sand, hence the water jacket when cast would cool faster than the cylinder, thus exerting an inward pressure wherever connected by metal. This would account for the water jacket reaching the elastic limit first.

Is this reasoning correct, and if not, in what particulars?

I have been told that these accidents are conclusive proof that either the water was not circulating, the fan was not working or the water was too low.

I am further told that if the accident had been due to stress of explosion the cylinder would have been injured as well as its water jacket, especially if the water was of proper height.

A radiator hot, top and bottom, and with water boiling out of the top would seem to indicate both circulation and a full radiator. I know that the fan was in operation, for it is electrically driven.

If the water was low would the cylinder not be more apt to crack than the water jacket and at the level of the water, thus making a horizontal crack?

Please let me know what experience has shown. I should be pleased to have an answer as soon as you can in an issue of THE AUTOMOBILE.

Delaware City, Del.

ELECTRIC MOTOR.

[This looks to us like a case of internal casting strains augmented by the high cylinder pressure during the period of overload. There is not enough data in this letter to formulate a definite opinion and we would like to hear from other readers who have views on the matter.—Ed.]

Remove Deposit From Muffler

Editor THE AUTOMOBILE:

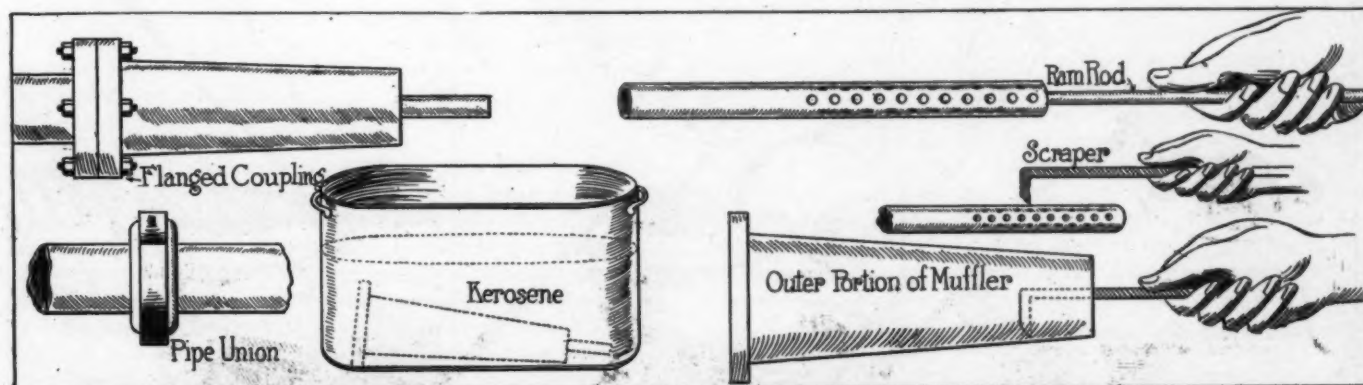
[3,029]—As a subscriber to THE AUTOMOBILE I take the liberty of asking a question which I think would interest other readers if answered by you. I have a touring car, which I have been running all season, and I think the muffler is becoming filled with exhaust products of the motor. I would like to know how to clean it before it gets bad enough to cause trouble.

Deposit, N. Y.

TOURIST.

There is only one way of going about this matter, and that is to take the muffler off the machine, soak it in kerosene and then scrape the parts upon which the deposits remain. You do not mention what type of muffler you use, but assuming it is of the cylindrical type, you are referred to the accompanying illustrations. Two methods of attaching the muffler to the exhaust line are used, a union and flanges. In either case the method of removing is obvious. The muffler should then be taken completely apart and the deposit removed from each part. If there are any tubes to be cleaned, a sort of ram-rod may be used to good effect, especially if a wire brush be placed upon the end.

In the accompanying illustration some suggestions are given which apply to any type of muffler. The scraper depicted consists merely of a flat file turned over and ground to an edge. It will be found very effective.



Two types of muffler connection with various means at operator's disposal for removing deposits of exhaust products.

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Fitting New Gaskets; Denatured Alcohol as an Anti-Freezing Mixture; Car Conveniences

REPLACING WORN GASKETS—That wheezing sound is familiar to all automobilists who have had their machines for some time. A leak in the exhaust or intake line has symptoms which cannot be confused very readily with any other trouble, although it is true that the impoverishment of the mixture due to a leak in the intake line will often be confused with carburetor adjustment difficulty. The whistling sound which accompanies the trouble, however, always betrays its nature. The remedy for sand and blow-holes in the castings was taken up in a recent issue so that if the cause of leakage arises from one of these defects the steps taken to remedy the difficulties have been outlined. It is now intended to show the method to pursue in stopping the leaks occasioned by worn or defective joints.

The first step is to remove the old gaskets. These are apt to adhere very firmly to the surfaces of the manifold flanges and also to the flanges on the parts to which the manifold is joined. The cold chisel is very handy in this case and by means of properly directed blows the old gaskets may be readily removed in spite of the almost metallic hardness which they acquire after having been used for some time. A series of light blows well directed will produce better results than a few heavy blows. Care should be used, in chipping off the old gaskets with the chisel, not to hit directly down upon the metal but to apply the blows in a slanting direction. In this way the casting will not be so likely to be cracked and, at the same time, the old material will be more rapidly removed.

After all that is possible has been knocked off by means of the chisel, the next step is to file the flanges. When doing this a large, flat file is used. This is run backward and forward across the metal with the surface as flat as possible until all the metal is bright and the last signs of the old gaskets have been removed. Care should be taken not to allow a burr to form in the interior of the manifold and thus choke the passage. If such an obstruction appears, it should be immediately removed by a few strokes of the file perpendicular to the face of the flange and within the opening. When the filing operation is completed the next step is to fit the gaskets.

In fitting the gaskets the first step is to mark out on the flat

sheet of gasket paper the shape of the piece which is to be cut to fit the opening. It is not necessary to do this by drawing the outline on the sheet. In fact, the results obtained in this way are not as apt to be accurate as those obtained by the practical method generally employed, in which the sheet of gasket-card is laid over the flange to be covered. By tapping gently all over the surface of the material with a hammer, the impression of the shape of the required gasket is left upon the material. A sharp wood chisel or other device is then used to cut the gasket to the required form. The gasket is then applied to the part and the nuts tightened. It will often be found, after fitting a gasket to a flange, that it is necessary to use a considerable amount of force in order to tighten the nuts sufficiently. A pipe placed over the wrench will aid materially in this purpose as a substantial purchase can then be obtained. Too much force should not be used, however, as the threads may be stripped if this is done.

When Using Denatured Alcohol—The days of anti-freezing solutions are now upon us with all their bitter cold. It often occurs that the owner will suddenly find his radiator sprung in several places after he has taken full precautions to guard against such an accident by placing a strong solution of denatured alcohol in his radiator. The action of water in freezing and bursting whatever is in its way is well known, but the enormous pressure which is exerted can hardly be appreciated. Stones are readily pried apart and cylindrical bottles made of heavy glass are easily burst asunder. The power required to do this is many times that required to break the connections of a soldered radiator in which the flat surface exposed to the action of the water is the least able to withstand its effect.

The reason for the radiator bursting after precautions have been taken by the owner to prevent just such an occurrence by adding denatured alcohol to the water, is that there is not enough of the alcohol in the water to prevent its solidification at the temperature to which it is exposed. Directions may be exactly followed when the water is put into the radiator, but the fact that the alcohol evaporates very readily is neglected. When the days are warm and the nights are cold it will be found that

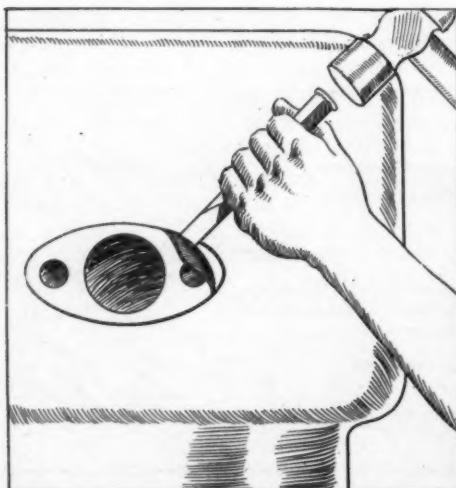


Fig. 1—Remove old gasket from cylinder



Fig. 2—Remove pieces on manifold flange

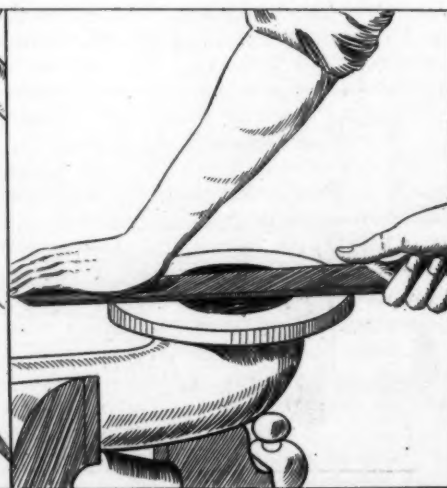


Fig. 3—File metal surfaces until bright

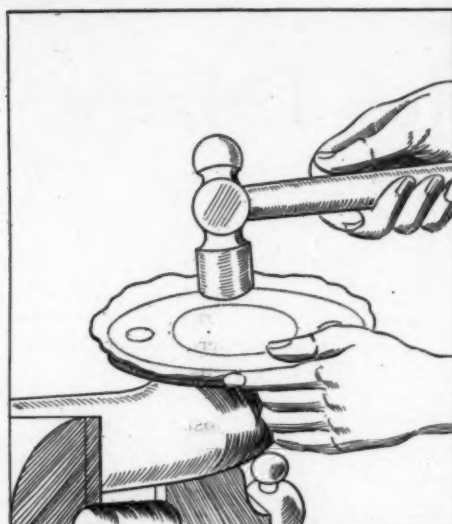


Fig. 4—Mark outline on new gasket

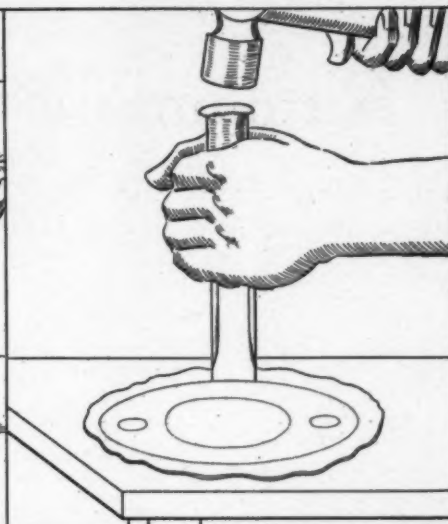


Fig. 5—Cut to indicated shape

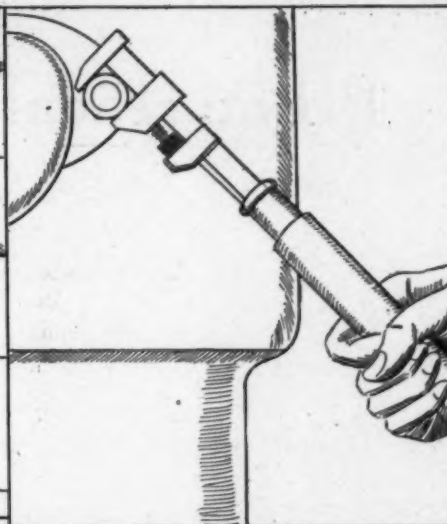


Fig. 6—Tighten, with pipe on the wrench

accidents of this nature are the most frequent. On account of the heat the volatile alcohol will evaporate much more rapidly than would be the case on a colder day. The result will be that instead of the 30 per cent. solution, which would freeze somewhere in the neighborhood of 5 degrees below zero, enough alcohol may have evaporated to have reduced the mixture to a 20 per cent. solution which will freeze at about 10 degrees above zero or to a 10 per cent. solution which freezes at about 7 degrees lower than the freezing point of water, or in the neighborhood of 25 degrees. This point is reached on a night of only ordinary coldness and it can readily be seen that disastrous effects could be produced on the radiator unless proper precautions were taken.

On the other hand, it is extremely difficult for the motorist to know how much alcohol to put into the radiator when it is impossible to tell from a sample of the solution how much alcohol has been evaporated. The hydrometer is necessary in this case. There are many simple forms of this instrument for sale which are very accurate. These can be depended upon entirely. The method of using the ordinary instrument is to note the reading when the solution is of the desired strength. It is then only necessary to keep the solution so that it will constantly have the same reading. In one instrument especially adapted to the automobile radiator, there are two readings, one the regular hygrometer reading and the other indicating the freezing-point of the mixture. In this manner the chief objection against the use of wood or denatured alcohol is overcome. It may be said, in passing, that the use of denatured alcohol is preferable to wood-alcohol as the freezing point is lower and hence a less proportion is required to secure the same results. Another point concerning wood-alcohol is the fact that formic acid will often develop. This is harmful in that the metal is attacked by it. With the denatured alcohol it is not possible that the metal of the radiator be attacked as there are no products formed which could in any way harm metal of any character, either by electrolytic or chemical action.

Make Use of Conveniences on Car—The modern cars are being equipped with many little features of comfort and convenience. These are often overlooked by the owner of the car who does not like to alter anything after it comes from the factory, especially if it be his first car and is found to run smoothly. Adjustable pedals, for instance, are now fitted to many cars so that the long-legged driver may be as readily suited as he whose feet are not so far removed from the rest of his body. By loosening the nuts on the pedal-shank the foot portion upon which the foot rests can be moved up or down as desired. In other cars, in place of the adjustable pedals, the driver's seat may

be moved longitudinally, in either direction. When this is the case the driver is brought nearer the steering wheel as well as the pedals. The attachments for the seat when it is capable of being moved are various, but it will generally be found to be the case that the seat moves along a sort of runway and is held in position by some simple means such as a bolt. Brake adjustment devices are always fitted and of late special attention has been paid to their accessibility. A simple wing-nut is all that has to be turned when it is found that after some time the shoes do not grip the drum as promptly and strongly as they once did. When this wing-nut is turned, the adjustment can be very simply and permanently made. Should the brakes drag on the drum when they are not required this trouble can also be rectified. This very seldom happens, however, as the tendency to wear is in the other direction, and the factory adjustment of the brakes generally takes care of the drag. Grease-cups have universally taken the place of the old oil-holes which could not be found very readily. To give these a half-turn is a familiar duty to all automobilists. There are other points of the car which have to be oiled, however, which cannot be reached by means of grease-cups, or which should not be lubricated by the non-fluid oil which is employed in the cups. These points are indicated in some manner, generally by little covers over the holes through which the parts are to be oiled. Another thing which may be mentioned and which is along the same general lines as those taken up is the much neglected oil-pressure gauge. The primary object of this gauge when placed upon the dash of the car by the maker is to allow the owner of the car to keep the cost of operation as low as possible by knowing at all times how much oil is being fed to the bearings. If this is known, the circumstances under which the car is operating may be taken into consideration and the owner of the car may be governed as to whether the supply should be curtailed or augmented. The maker of the car will recommend an oil-pressure which should be used for certain kinds of work, such as city, suburban or country driving, the last-mentioned requiring the most oil while the first-mentioned requires the least. These gauges should be watched as well as all the little conveniences throughout the entire car which have been placed thereon for the convenience of the owner and to aid him in its economical operation.

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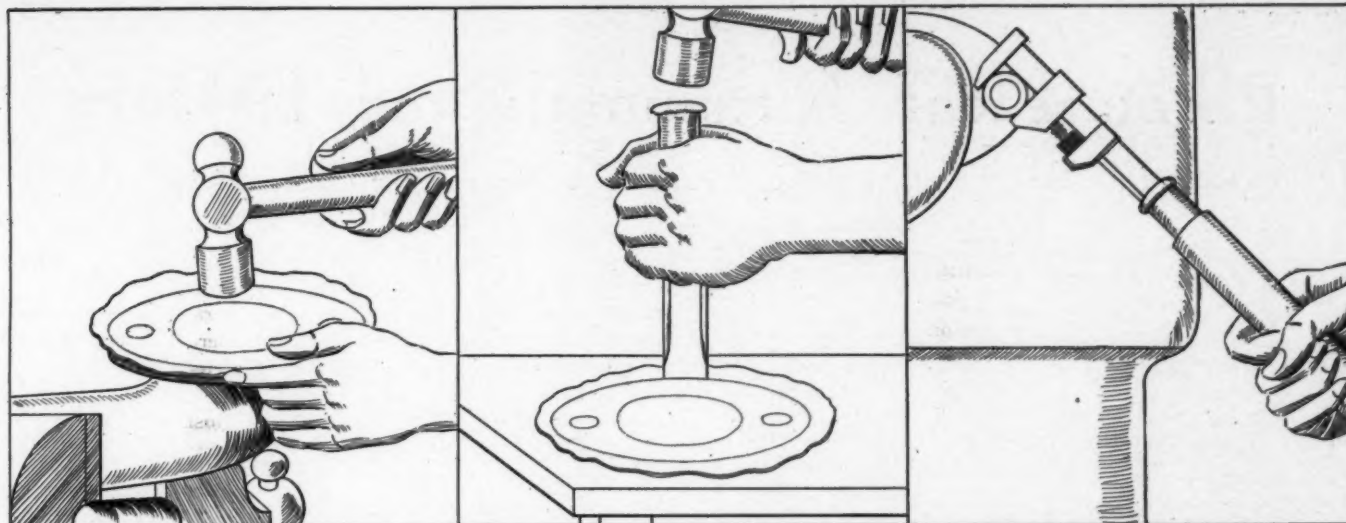


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The Ideal Automobile for 1913

Some of Our Readers' Conceptions of What Next Year's Car Should Be

Specifies 2,500-Pound Car

EDITOR THE AUTOMOBILE:

Seeing that the Ideal car section is still continued, I herewith give my conception, Fig. 1.

In the first place it should be underslung. The frame should be of pressed steel, channel section, reinforced at the front kick-up. The clearance should be 10 inches. The front axle should be of drop-forged beam, I-section with large bearing surface in the knuckles and steering connections. These latter I would want above and behind the front axle. The rear axle should be floating, of the single-piece type with removable inspection cap. All bearings, excepting motor bearings, should be Timken.

I would want a unit power plant with three-speed sliding, selective gearset bolted onto rear arms of crankcase. The motor should be T-head, water cooled, with four cylinders cast in pairs. Bore to be 4 1-2 inches and stroke 6 inches, permitting of 40-50 horsepower. Large valves, with long guides, and cams such that exhaust valves remain open for a fraction of a second, would prove efficient. The crankshaft should turn in three long, large-diameter, white bronze bearings. All timing-gears should be spiral-cut to eliminate noise. Lubrication should be splash and force-feed. For ignition I would want a high-tension magneto and storage battery. An ample-sized float-feed carbureter with dash adjustments for air and gas would be required. The clutch should be multiple disk, running in oil, and final drive by shaft and two universal joints.

The wheelbase, I would want 116 inches in length. The springs should be semi-elliptic 42 inches by 2 1-2 inches front and 50 inches by 2 1-2 inches rear. The wheels should be artillery type, ten spokes in front, and twelve in rear equipped with quick demountable rims, bearing 38 by 4-inch tires.

The control parts should be standard with change-gear and emergency brake lever inside at the right of driver. Drive to be right-hand.

The body features can best be seen from the accompanying illustration.

The equipment should consist of all the necessities and conveniences for touring.

The car, weighing probably 2,500 pounds and built of best materials, should sell for \$2,500 complete.

The reasons for my choice are these:

First, the underslung car has proven its worth in many ways.

Secondly, the long-stroke motor with large valves is most flexible and does away with unnecessary gear-changing.

Thirdly, the unit power plant prevents any refraction in the alignment of the shafts and lessens the number of parts.

Simplicity and accessibility should be the chief characteristics of the above car.

Passaic, N. J.

JOSEPH A. LANGE.

Wants a Silent Knight Motor

EDITOR THE AUTOMOBILE:

I have read with much interest your page on Ideal cars and herewith submit my idea of an ideal car for 1913.

The motor should have four cylinders, 3 3-4 by 4 1-2 inches and should be of the Silent Knight type, rated at 22 horsepower but developing about 30. Ignition dynamo and the new Edison storage battery should be part of the equipment. Transmission should have three speeds forward and reverse, worm drive to floating rear axle. A cone clutch should be used and the frame should be underslung with 10 1-2 inches clearance. Tires should be 36 by 3 1-2 inches. Demountable rims should be included. The wheelbase should be 108 inches, the springs semi-elliptic, 38 inches in front and 47 inches in the rear. Lubrication should be by means of a gear-driven oil pump. The carbureter should be of the float-feed type with auxiliary air supply. It should be easily adjustable from the dash. Steering control should be by irreversible worm and gear. The steering wheel itself should be 18 inches in diameter. The body of the car should be a "classy" type roadster, seating two. Equipment should include top, windshield, speedometer, gasoline gauge, one extra rim and Prest-O-Lite tank or electric lighting system.

This car would weigh about 2,000 pounds and ought not to cost more than \$1,500 with full equipment.

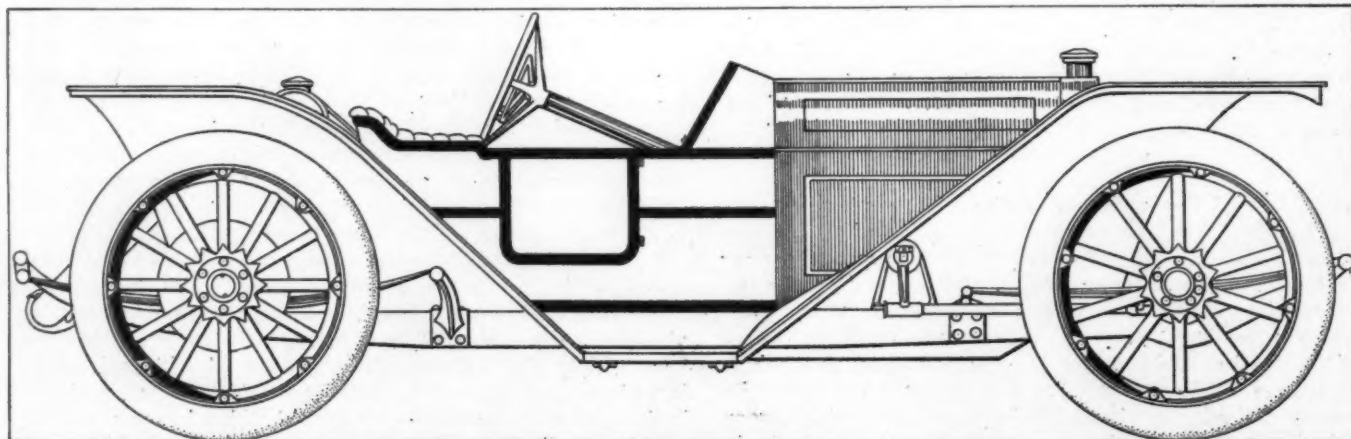
READER.

Headlights to Turn with Steering Wheel

EDITOR THE AUTOMOBILE:

Being a reader of THE AUTOMOBILE I take pleasure in writing you my opinion of an ideal car.

My ideal car should have a six-passenger body with torpedo



Underslung type of car favored by Reader and described on this page.

design and bucket dash. The motor to be a four-cylinder with sleeve-valve design developing 50 horsepower or more. A honey-comb radiator with a circulating pump to act as the cooling agent. I would also have the motor equipped with a self-starter and a dynamo for lighting purposes.

The steering wheel should be large and have a low, rakish appearance with the gas and spark levers on top of the wheel. A small steering wheel gives a very bad appearance to a machine. It should always be in proportion to the size of the car.

The car should be shaft-driven and should have three speeds forward and one reverse; center control lever, with steering wheel on the right side. The headlights so arranged to turn when the front wheels are turned by the steering wheel.

The brakes should be both external and internal with 14-inch drums and wide braking surface. The springs should be semi-elliptic in front and three-fourths elliptic in the rear and equipped with first-class shock-absorbers. The gasoline tank to be under the front seat and have an auxiliary tank in connection.

The wheelbase should be 120 inches and the tires 36 inches by 4 1-2 inches. The tool-box should be built into the running-board, as long as the running-board and about 4 inches deep. The car to have the best mohair top, zig-zag windshield, cut-out and whistle. The dash to include a gasoline gauge with the regular equipment, and the car as a whole having a low, rakish appearance.

Brandon, Wis.

JESSE R. WILLIAMS.

[It seems that the lines of choice diverge rather rapidly and that there are few medium-priced cars which have been described as the reader's ideal. The \$1,500 car, it would appear, has been overlooked to a great extent, although it is apparent that such a type would be just about right to strike the pockets of the large majority of the people who buy the cars.—EDITOR.]

Alcohol for Automobile Motors

There is no reason why alcohol should not be used for propelling automobiles, if it can be obtained sufficiently cheap. Experiments made with alcohol fuel for internal combustion motors have given good results, and the use of this fuel seems to be on a slow increase where the price of alcohol is considerably below that of gasoline.

Some years ago when the high tax on alcohol production was waived in this country the general expectation was that the use of this fuel would make enormous strides. With denatured alcohol as a free product, one looked forward to a greatly increased production of this article and a consequently lower price of it. The price has been somewhat reduced, it selling now for 75 cents a gallon; but, in any case, the production has not been increased as most people expected who were then interested in this field. The chief reason for their disappointment lay in the fact that the raw material for alcohol is too costly in this country to permit of using large quantities of it for denatured alcohol. Sugar-cane molasses is extensively used but beet molasses is more advantageously applied as cattle feed, and potatoes, though originally found in America, command a much higher price here than across the Atlantic.

Nor can a great change be expected to take place in this field. Though there are millions of acres of fertile land unused in the United States when these will be cultivated, it will be for more valuable produce than alcohol-yielding growths. As a fuel, alcohol would now have to compete against gasoline, kerosene and coal, so that it would have to be produced at a very low cost indeed if it would break into the market. So it seems that the fuel market for power-production by internal combustion engines will remain in the control of kerosene and gasoline for some time to come.

Harking Back a Decade

FROM *The Motor Review*, February 13, 1902:

At a meeting of the Board of Governors of the Automobile Club of America, it was decided to abandon the proposed plan for affiliation of other clubs with the A. C. A. and to favor a plan to join with the other clubs in issuing a call for a convention the latter part of the month to form a national association of clubs.

The Automobile Company of America has been placed in the hands of a receiver on application of V. E. Macy, one of the stockholders. The petition recites that the company is insolvent but could probably be made profitable under other management. The assets are estimated at \$325,167. The company is capitalized at \$5,000,000, but of this amount only \$350,000 has been paid in. Reorganization is planned.

A new storage battery has made its appearance from the Browne & Balch factory, at Salem, Mass. The difference between this battery and others lies in the fact that the plates are made in gridiron form, thus giving a larger surface upon which the electrolyte can act.

The Hansen Automobile Company has been incorporated at Cleveland, to manufacture a single-cylinder car weighing less than 800 pounds and capable of 25 miles an hour. The company will occupy the old Brush plant.

Henri Fournier, who returned from France recently, says he is having specially built an automobile of 90-horsepower which weighs less than 1 ton.

The Wright Taper Roller Bearing Company, of Buffalo, has been incorporated for \$900,000 to manufacture an anti-friction taper roller bearing for automobiles.

A new system of manufacture has been put into effect at the

Winton factory. Under the plan the factory runs on one model for 1 month and then changes and runs exclusively on another model for the next month. In this way the efforts of the factory have been made more efficient.

The George N. Pierce Company of Buffalo reports a good out-of-town, and a fair local, demand.

The Federal Automobile Company of America has entered an active campaign to market \$2,000,000 worth of its stock issues at 25 per cent. of par value. According to its prospectus the company will make electric automobiles at a cost of \$300; will sell them to agents for \$500 and they in turn will sell them to the public at \$600. The company figures the life of its new battery at 10 years and predicts 55 miles to the charge of current. On order the company will undertake to build racers guaranteed to make 60 miles an hour. Some question has been raised as to its ability to do all these things. The stock is not finding ready sale.

Exports for the past week, including cars and parts, totaled \$9,450, China taking \$4,575 of the total consignment.

There is nothing to be said in favor of the word "chauffeur": it is both incorrect and indefinite in France and much worse when used in America. There is nothing to be gained by borrowing or stealing the terminology of the stable and turf for misapplication to the motor vehicle.—*Editorial*.

Reports have been numerous as to the installation of motor speedways on Long Island, South Jersey and Westchester. The reports and rumors are based upon the fact that a special road for automobiles, 16 feet wide and a part of the Bronx Park system, is being built for vehicles to run over at very moderate speed.

Automobile Metallurgy Made Easy

By E. F. LAKE

Part XIII—Pressed Steel

Rear Axle Housings, Intake Manifolds, etc., Now Made from This Material

PRESSING is one of the methods employed for making steel into various useful shapes. This might be divided into two classes, namely, hot and cold pressing, as they vary greatly in the methods employed and the uses to which the finished production is put. Hot pressing is nearly always used for large work, such as armor plate, cannons, etc., and consequently is of very little interest as far as the automobile is concerned. While it is true that the work done in the hydraulic press, as described in last week's article, might be classed under steels, this is only a growth or development of the drop-forge or hammer-forge methods of manufacturing parts. Hence this kind of work has been classed as forgings and is not included under pressed steels.

Cold pressing, sometimes called flanging, is used very extensively for various automobile parts and the different kind of parts that are thus shaped is gradually on the increase. It has supplanted cast iron, aluminum, brass, etc., for many parts. The stock used for this work is either hot or cold rolled sheet steels and the pressure applied to it tends to give the metal a denser and finer grain structure. Pressed parts are far superior to castings as they are made from rolled steels and do not have the brittleness or hardness of castings, and the finer structure gives them much greater strength, toughness, wearing qualities, etc. Another thing in their favor is that they can be made lighter and cheaper than castings and very much cheaper than forgings. This accounts for the tendency toward making all parts that are possible out of pressed steels; especially on the cheaper cars. Such parts come ready to assemble and do not have to be machined as do the castings or forgings.

Ever since the tubular construction was abandoned the frames of automobiles have been pressed. At the present time the side members of the frame are formed in one operation on huge hydraulic presses, while the front drop member, and other cross members are made in presses of a smaller size. Rear axle housings as shown in the illustration have been made of pressed steel for some time on many cars and they are usually made in two pieces, similar to the one shown. Another large piece that is made by pressing is the engine dustpan.

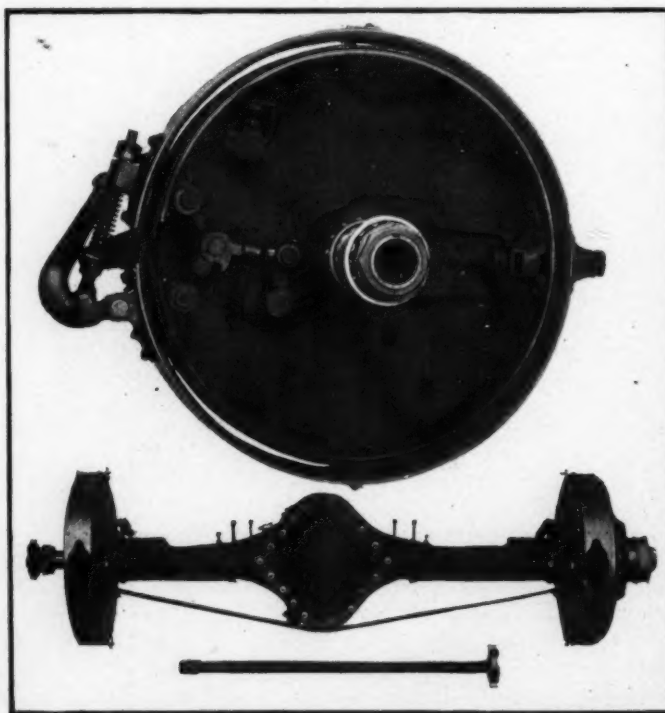
One motor car company presses an engine support and thus does away with the necessity of casting long feet on the engine case. The engine case is usually made of aluminum and the feet are con-

tinually breaking off, as the metal is weak and brittle; whereas the pressed steel engine support shown is many times stronger and being tougher does away with this breakage. One of these is bolted to each end of the en-

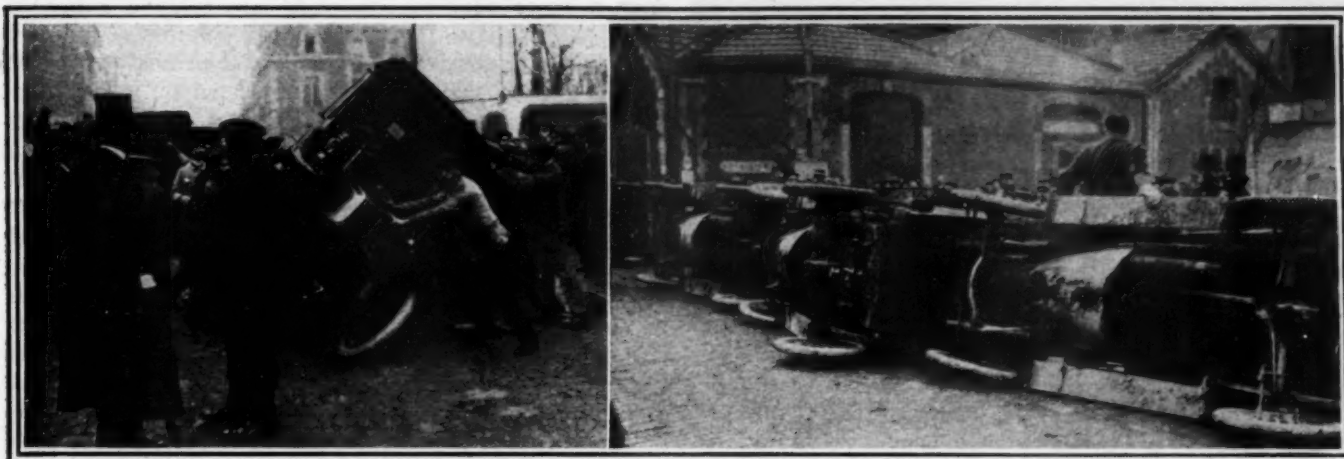
gine case. Hand hole covers of the engine case are now generally made from pressed steel. Clutch cones and their cases, brake drum covers, as shown in the illustration, reinforced flanges for rear axles, hub caps, carburetor supports and ball cups are some of the other parts that are being made by pressing them into shape from sheet steel.

One of the most difficult parts that has been made by pressing is the intake manifold. One automobile firm, however, is making a more difficult piece than this as it is larger and more complicated. This is the transmission gear case. Differential and driving-gear cases are also being made from pressed steel and experiments are continually being conducted toward the manufacture of engine cases in this way. While the engine cases require thick lugs and bosses in various places, the main body of the case can be pressed into shape and these lugs and bosses put on with an oxy-acetylene or electric welding apparatus. These welding processes are now being used in manufacturing other cases and parts and very extensively in repairing broken car parts. Such a case would be much better than the aluminum cases that are now used or any other cast case.

The pressing method can successfully be used to form all parts which may be constructed from thinner metals and have the required strength. The more vital parts of a car, require comparatively thick sections and must be made of stronger and harder metal than those that readily lend themselves to pressing. In pressing the different parts to shape, many sharp bends must be made and this requires a soft, plastic steel. Such metals as nickel-chrome steels, which are used where the greatest strength is required, can be pressed into shape only with the greatest difficulty and even then the nickel and chromium can only be present in small percentages. These steels are even too hard to machine readily. At that, however, racing car frames have been made from nickel-chrome steel. Nickel steels can be pressed if the carbon is kept low but the finest grained and strongest steels of this kind have a medium carbon content. Even the ordinary carbon steels must be comparatively low in carbon percentage if they are to be pressed readily.



Timken pressed steel brake drum and rear axle housing



How Parisian taxicab drivers called public attention to their grievances during the strike

Gentle Ways of Striking Cabbies

Strikes among the taxicab drivers of Paris have been of frequent occurrence, but under the severe police regulations which render actual bodily violence against strikebreakers impracticable, the cabbies have usually been compelled to keep within the rules of law and order. A drastic and picturesque method for calling public attention to their grievances was devised, however, during the strike which was carried on during January, and which, at this writing, has not yet been ended. While each of the strikers was still in charge of his vehicle, various groups of them succeeded by a concerted movement in turning whole rows of the cabs over on their sides, and the *sergeants-de-ville*, having received no instructions, looked placidly on, while the interesting object lesson shown in the accompanying illustration was being

prepared. It seems that they first emptied the gasoline tanks and went about the spectacular proceedings in a gentle manner calculated to avoid responsibility for damages.

Prize for First Flying Man

The first person who after June 1, 1912, flies a distance of 10 meters and back again by his own muscular power will be entitled to a prize of 10,000 francs (\$2,000) offered by one of the members of the Peugeot bicycle and automobile firm. The distance must be measured in advance and indicated on the ground by two parallel lines, and it is the idea that the devices to be used by competitors will be mainly in the form of bicycles equipped with some sort of aeroplanes.—*L'Auto*, February 2.

Calendar of the Coming Automobile Events

What the Future Has in Store for Motoring Enthusiasts

Shows

Feb. 5-17.....St. Louis, Mo., Coliseum, Annual Show, Pleasure cars, first week. Commercial vehicles, second week.
Feb. 10-17.....Atlanta, Ga., Auditorium-Armory, Atlanta Automobile and Accessory Dealers' Association.
Feb. 10-17.....Youngstown, O., Auditorium, Second Annual Show.
Feb. 12-17.....Ottawa, Ont., Howick Hall, Annual Show, Ottawa Valley Motor Car Association.
Feb. 12-17.....Kansas City, Mo., Annual Show, Combined Association of Motor Car Dealers.
Feb. 12-17.....Troy, N. Y., Second Annual Show, State Armory, Troy Automobile Dealers.
Feb. 12-19.....Dayton, O., Third Annual Show, Dayton Automobile Club.
Feb. 14-17.....Grand Rapids, Mich., Third Annual Show.
Feb. 17-24.....Pittsburgh, Pa., Second Annual Show, Exposition Bldg., Pittsburgh Auto Show Association, Inc.
Feb. 17-24.....Cleveland, O., Annual Show.
Feb. 17-24.....Newark, N. J., Fifth Annual Automobile Show, New Jersey Automobile Exhibition Company, First Regiment Armory.
Feb. 17-24.....Minneapolis, Minn., National Guard Armory and Coliseum Annual Show, Minneapolis Automobile Show Association.
Feb. 19-24.....Omaha, Neb., Seventh Annual Show, Auditorium, Omaha Automobile Show Association.
Feb. 19-24.....Hartford, Conn., Annual Show, Automobile Club of Hartford, State Armory.
Feb. 19-26.....Cincinnati, O., Annual Show, Music Hall, Cincinnati Automobile Dealers' Association.
Feb. 20-24.....Binghamton, N. Y., State Armory, Third Annual Show, Automobile Dealers' Association.
Feb. 20-28.....Baltimore, Md., Annual Show, Baltimore Automobile Dealers' Association.
Feb. 21-25.....New Orleans, Washington Artillery Hall, New Orleans Automobile Dealers' Association.
Feb. 21-28.....Toronto, Ont., Annual Show, St. Lawrence Arena, Canadian National Automobile Association.
Feb. 22-24.....Kalamazoo, Mich., Third Annual Show.
Feb. 24-March 2.....Brooklyn, N. Y., Twenty-third Regiment Armory, Annual Show, Brooklyn Motor Vehicle Dealers' Association.

Feb. 26-March 2.....Paterson, N. J., Annual Show, Fifth Regiment Armory, Paterson Automobile Trade Association.
Feb. 26-March 3.....Quincy, Ill., Highland Park Stone Pavilion, Annual Mississippi Valley Show, Quincy Auto Club.
Feb. 26-28.....Charlotte, N. C., Annual Show, Charlotte Automobile Dealers' Association.
Feb. 27-March 2.....Elmira, N. Y., Second Annual Show, Elmira Automobile Club.
Feb. 28-March 2.....Davenport, Iowa, Annual Show, Davenport Automobile Association.
Feb. 29-March 2.....Fort Wayne, Ind., Fort Wayne Automobile Show Association.
March 2-9.....Boston, Mass., Tenth Annual Show, Boston Automobile Dealers' Association, Inc.
March 2-9.....Columbus, O., Annual Show, Columbus Automobile Club.
March 4-9.....Reading, Pa., Reading Railroad Shops, Annual Show, American Exposition Company.
March 12-16.....Denver, Col., Auditorium, Annual Show, Motor Field, A. Wahlgreen, Manager.
March 6-9.....Louisville, Ky., Fifth Annual Show, First Regiment Armory, Louisville Automobile Dealers' Association.
March 6-9.....Tiffin, O., Second Annual Show, The Advertiser.
March 12-16.....Syracuse, N. Y., Fourth Annual Show, State Armory, Syracuse Automobile Dealers' Association.
March 25-30.....Indianapolis, Ind., Annual Show, University Park, Indianapolis Automobile Trade Association.

Race Meets, Runs, Hill Climbs, Etc.

Feb. 17-18.....New Orleans, Track Races, Fair Grounds, Mardi Gras.
Feb. 22.....Bakersfield, Cal., Annual Road Race.
April 27.....Philadelphia, Annual Roadability Run, Quaker City Motor Club.
May 15-17.....Chicago, Ill., Commercial Vehicle Test, Chicago Motor Club.
May 30.....Indianapolis, Ind., Speedway, 500-mile race.
June 20.....Algonquin, Ill., Annual Hill-Climb, Chicago Motor Club.
Aug. 8-10.....Galveston, Tex., Beach Meet.
Sept. 2.....Indianapolis, Ind., Track Races, Speedway.
Oct. 7-11.....Chicago, Ill., Reliability Run, Chicago Motor Club.

THE AUTOMOBILE

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The Truck Shows

NOW that the three big truck shows of the season, namely, two in New York and one in Chicago, are over it is possible to look back sanely and see just what has been the value of them. They have done an amazing amount of good, in spite of the fact that many truck makers state that they have made few sales. One maker gave a good reason for the few sales made. He said: "The buyer spends two, or perhaps three, days at the show looking at all of the different makes of trucks and goes home more or less bewildered, and not ready to make an immediate purchase. He has decided that he is going to buy some trucks, but does not know what make they will be. He wants a few days, or perhaps weeks, in which to reconcile the different aspects of the truck business with the physical conditions surrounding the operation of motor vehicles in his territory or city."

Another truck manufacturer expressed a similar reason why there were so few sales of trucks. According to him, many engineers and heads of transportation departments were sent to the show to thoroughly examine into all of the different makes of electric and gasoline vehicles, but without power to buy. These engineering and transportation emissaries will carry back with them to their home cities scores of recommendations which will result in more or less certain sales at an early date. As to what trucks these companies will purchase remains to be seen, because in nearly every case, perhaps, more

than a score of different truck agents have talked to these people, have their names and addresses and will without doubt consider them among their best prospects. This is good business.

A third example of the indirect value of the show has been in the vast amount of investigation that has been made in motor-propelled vehicles for fire department use by fire chiefs and others interested in similar types of vehicles. In nearly every case each representative of cities looking for new vehicles of this nature will go home filled full of information which will later assume the form of reports to city councils or fire department heads, and it is but natural that a few weeks or months later orders may be expected. When shows have created this interest it is up to the truck makers and dealers to do the rest. All that a show can do is to bring the people into the building where the machines are displayed, but it remains for the force of demonstrators and salesmen to make the actual sales.

One truck maker, after the Chicago show had closed, announced that he did not think he would ever go into another truck show. He had not made any sales and he wondered what was the use of spending the money. That maker forgot the thousands of people who had passed his exhibit stand during the week of the show, and apparently forgot that it was up to him and his salesmen to grab off the prospects and make sales. The rule of shows is that they only help those who help themselves. The truck maker who expects to sit in an arm-chair in the back of his exhibit space and have people walk in to him with a roll of notes as deposits or payment on vehicles will be sorely disappointed. Selling trucks is a matter of work, and good, hard-headed, common-sense work at that.

Many truck makers did as much business as they deserved to. These makers came to the show without preparation; they were like the foolish virgins who went to the marriage without oil in their lamps. These truck makers came to the show without actual sheets showing what their different capacity trucks had done in certain deliveries in different cities. The buyer from a coal company would ask for actual reports of coal demonstrations made in Chicago, New York, Boston or other cities. The companies did not have these and immediately the first step in making a sale was lost. Compare such unpreparedness with other companies which went prepared for the fight, went fortified with actual cost sheets; cost sheets which showed every detail of brewery demonstrations for the benefit of the brewery buyer; department store figures for the merchant; coal figures for the coal company, and figures to suit nearly every other big industry. Such preparedness represents the wise virgin classification, those who go with their lamps trimmed, well filled with oil and ready for the ceremony.

The circuit of truck shows has done an amazing amount of good. Many of the truck makers have not the slightest conception of the amount of good they have done. The way the daily press in New York and Chicago has taken the problem up has alone meant hundreds of thousands of dollars to the industry. The business people in these two big cities have not been able to keep from thinking trucks and delivery wagons during the last month. Long before the shows opened they were besieged by the show management with letters and fol-

low-up letters drawing their attention to the opening of the shows, and ever since then the trade and daily press have been talking motor trucks. This would not have occurred had it not been for the shows. The last month would have been as dull or perhaps duller than the worst month of the year. Truck shows are good; they must be kept going; they must be made bigger; the papers must be kept hot on real good truck information; the show managements must keep on sending the letters, and, last of all, the selling departments of the truck industries must keep right up to the minute. Activity, well-directed activity, is the big aim. In three words—discrimination, concentration and application—the entire moral law of truck salesmanship at the present time is found. The shows have started the good work, the dealers must keep the ball rolling.

Many of the truck dealers did not go as well prepared

to the recent shows as they should have, and what applies to selling trucks holds good for selling touring cars; namely, you generally get what you go after. Going to a show in a poorly prepared manner is useless. One head man at an exhibit during the recent Chicago show spent more time and energy in giving away little souvenirs than in talking the arguments that sell freight automobiles. The souvenir was so inappropriate to the truck or delivery field that the moment it was produced it was enough to wreck the confidence of any good buyer. Selling trucks is a business, and when advertising takes the form of souvenirs, it should be appropriate.

Every truck maker should start at once getting ready for next year's show. He should be making notes of the mistakes of the past shows and outlining live methods with which invade the shows of 1913. This is business.

Seek to Amend Callan Law

Affiliated Automobile Organizations Point Out Several Features Which Need Revamping

AMENDMENTS to the existing automobile law governing the use of automobiles in New York State have been suggested ever since the Callan law went into effect. The courts have knocked out some of the significance of the law at one time or another and the result is that the meaning of the statute is vague.

Several motor organizations, including the Touring Club of America, the Automobile Dealers' Association and a number of clubs and trade bodies in the state, are interested in having the use of the automobile defined. In furtherance of this plan the organizations have been considering sections of proposed amendments to cover the following:

Lights on all vehicles from one hour after sunset to one hour before sunrise.

Prohibiting the use of the muffler cut-out in cities and incorporated villages.

Adoption of the Connecticut provision for non-resident tourists which would make New York a wide-open state to non-resident owners and operators residing in states granting to New York owners and operators like privileges.

An amendment to provide for uniformity in the local ordinances in all cities and incorporated villages in regard to motor vehicle regulations.

Prohibiting the use of non-dazzling headlights in all cities and incorporated villages.

Providing for the daily filing of the records of owners registered and chauffeurs licensed with the police authorities in all cities requesting the same.

Amendment to provide that an applicant for the original registration of a motor vehicle who does not file his application therefor until after the first day of February in any year shall be entitled to a pro rata reduction in the fee for such registration calculated to the first of the month in which application is made.

Amending the highway law to provide for the transfer and jurisdiction of the Automobile Bureau from the office of the Secretary of State to the Department of Highways.

Race Victims Figure on Balm

SYRACUSE, N. Y., Feb. 10—Advices from Albany today are that persons having claims against the state as the result of the State Fair automobile accident last September will try to agree upon the amount of damages with the idea of securing an appropriation from the state for the total amount. This is the result of a conference by attorneys with Assemblyman Whitney.

Correja Secures Dyer License

Vandewater & Company Thus Acknowledge Validity of Inventor's Transmission Patent

THERE was something in the nature of a shock to motordom in the announcement Tuesday that Vandewater & Company, makers of the Correja car, had acknowledged the validity of the Dyer transmission patent to the extent of taking out a manufacturer's license from the owner of the patents.

The series of steps that led up to this action includes several suits that have been brought against private owners to enforce individual licenses. The particular case in question was that brought against Royale H. Fowler, M.D., of Brooklyn, who owns a Correja car. When suit was entered against Dr. Fowler he retained Darwin J. Meserole to attend to the routine matters attending such procedure and of course Henry Kuntz, counsel for Vandewater & Company, was called upon to defend the case.

After considerable negotiation Mr. Kuntz announced Tuesday afternoon that the Correja makers had decided to take out a license from the Dyers and the fee was placed at \$3 per car.

S. A. E. Discusses Speed for Trucks

When the Commercial Car Standardization Committee of the Society of Automobile Engineers met recently William M. Kennedy, chairman of the committee, found that over 60 per cent. of the membership was present and the meeting proceeded to consider some of the vital elements in standardizing trucks.

The first matter of importance to come up for discussion was as to the method to be used in reaching conclusions touching upon the sizes and capacities from the viewpoint of the purchaser. Afterward the question of extending the inquiry for the benefit of the maker will be taken up. These questions were left open for the time being, but will be the subject of a detailed report at a later date.

It was decided that each truck should be capable of rendering normal or continuous service under its tonnage rating and that it should have an overload capacity of 25 per cent. for temporary or emergency service.

As far as maximum speed is concerned the committee favored 15 miles an hour for 1-ton trucks; 12 miles for those of 2-ton capacity; 10 miles for 3-ton trucks; 9 miles for 4-ton wagons and 8 miles an hour for cars of 5 tons capacity.

In the determining of load capacity, horsepower, drawbar pull, springs, frame, brake surface and proportional load will be considered. The figures given above represent only tentative conclusions and may be changed at a subsequent date. At the next meeting of the committee the report will be in definite shape.



Cole testers preparing for a day's grind over the frozen roads around Indianapolis

WINTON IN TACOMA—The Winton Motor Carriage Company opened its Tacoma, Wash., agency during the past week and has established quarters at 1214 Tacoma avenue with H. T. Moody in charge.

Kelleher to Sell Ford—The last open Ford territory in the state of Washington was closed the past week with John Kelleher, who will open a Ford agency at Ellensburg.

Kissel Kar in Baltimore—The contract to handle the Kissel Kar in Baltimore and Maryland has been closed by B. F. Gooden, of the Mt. Vernon Motor Company.

Chase in Wisconsin—The Allan Peck Company of Superior, Wis., has taken the agency for the Chase commercial car for Douglas county, Wis., and St. Louis county, Minn.

Dahlen Keeps Ford Agency—The automobile firm of Dahlen & Stewart, of Walla Walla, Wash., has been discontinued and Howard Dahlen has taken the agency for the Ford car in that city.

Federal Rubber Banquet—The annual banquet of the directorate of the Federal Rubber Manufacturing Company to its sales-agents and traveling representatives was held in Milwaukee, Wis., on Feb. 6.

Sechrist Gets Marathon—A. H. P. Sechrist, proprietor of the Southern Pennsylvania Auto Company, 243 S. Orange street, York, Pa., has taken the agency for the Marathon line in York and Adams county.

Reo in Berlin, Wis.—The Johnson-Fortnum Machine Works have taken the agency for the Reo in Berlin, Wis. The concern has been doing a large share of local repair work on cars for several years.

Stop Making Colburns—The Colburn Automobile Company has discontinued the manufacture of the Colburn automobile, and will devote the energies of its whole plant hereafter to the sale of National cars.

New Firm at York—The Auto & Truck Sales Company has opened headquarters at 362-364 W. Market street, York, Pa. The company has taken the agency for the Fiat, Stoddard-Dayton, Baker electrics and Sampson trucks.

Two New Dealers—Two Seattle business men will soon enter the automobile dealers' ranks, E. H. Brooks and J. C.

Bunch. They will represent the Oldsmobile. The location of the new agency has not yet been announced.

Milwaukee Club Booming—As the result of an increase in dues from \$6 to \$12 per annum, the Milwaukee Automobile Club received up to February 10 more money than the total receipts for dues during the entire year of 1911.

Garage at Sheboygan—George Bessinger and Harry B. Moore have formed a partnership and leased the Aldag brick building at 827 Pennsylvania avenue, Sheboygan, Wis., for garage, salesrooms and repair shop. The building is being remodeled.

Hall Starts Business—L. S. Hall, formerly associated with the Goodyear Tire & Rubber Company, has opened up the company's former branch quarters at 1402 Ridge avenue, Philadelphia, for the sale and repair of automobile tires under the firm name of the L. S. Hall Rubber Company.

Two Syracuse Notes—F. C. Benson, manager of the James Auto Company, Syracuse, N. Y., will in future handle the Havers automobile, built at Port Huron, Mich., in connection with the Hudson and Stevens-Duryea product. E. R. Brown has joined the sales force of the Overland-Syracuse company.

King and Ruth Companies Consolidate—The King Transportation Company, of Portland, has consolidated with the A. G. Ruth company, of Philadelphia. The King company operates the Tyrell sight-seeing autos and has made arrangements to run two more Kelly trucks during the coming summer.

Savannah News—The Southwest agency for the R. C. H. car has been placed with Broughton & Lamb. R. S. Brown & Company have taken the agency for the Stearns car for Southwest Georgia. The Valveless Elmore is being distributed by John J. McDonough. The Cole 30, Maxwell and E-M-F are being handled by the Hymn Automobile Company.

New Washington-Baltimore Route—In view of the fact that the Washington-Baltimore boulevard is to be under repair during the coming summer, Washington motorists are delighted with the new route to Baltimore that has just been laid out by John F. Mixer, one of the Automobile Blue Book route makers. The route is via Olney, Sandy Springs, Ashton, Laurel and Relay. The distance is about 56 miles and the road is said to be one of the best leading out of Washington.

Metz in Milwaukee—The First Avenue Garage, Milwaukee, Wis., owned by Eigel Brothers, is local distributor for the Metz line.

Mitchell in York—T. S. Pfeiffer, 323-325 East Market street, York, Pa., will handle the Mitchell car in this city and vicinity.

Auglada in Canada—McLachlan, French & Johnson, of Ottawa, Ont., have been appointed representatives in Canada for Auglada rims.

Goodyear Now in New Home—The Goodyear Tire & Rubber Company is now at home in its new double building, 207-209 North Broad street.

Titus Now in Wholesale Line—Fred J. Titus, for the past year selling Alcos retail, is now associated with the wholesale department in New York City. He will assist in establishing agencies.

Plummer to Sell Overlands—F. C. Plummer, who formerly sold Buick and Oakland cars, has just been added to the sales force of the Connell-McCone Company, Boston, agent for the Overland.

Monson Resigns—Charles S. Monson, Western sales manager for Gray & Davis, has handed in his resignation, effective March 1. Mr. Monson has made no definite decision as to future plans.

Warren Adds Cutting—L. B. Warren, who handles the Austin car in Boston, has taken the agency for the Cutting and he has salesrooms now at 338 Newbury street, close to Massachusetts avenue.

Johnson Resigns—Henry L. Johnson, for many years with the Premier both at the Boston branch and later at the factory, has resigned to accept a position as manager of the Morse agency in Boston.

Schofield Now District Manager—George L. Schofield, formerly of the United States Motors Company, St. Louis, Mo., has been appointed district manager for the American Motors Company at Kansas City, Mo.

New Everitt Sales Branch—A new firm in Baltimore is the Everitt Auto Company, which will handle the Everitt car in this section. The firm is located at 1200 Mt. Royal avenue. F. E. McGee, H. B. McGinn and C. E. Hunter are in charge.

New Cass Agent—Baumgardner & Kibby, local distributors for Marathon car, have secured the agency for the Cass line of motor trucks in Toledo and northwestern Ohio. Cass cars were formerly handled in Toledo by the Gamble Motor Car Company.

M. H. A. Banquet a Success—The annual meeting and banquet of the Massachusetts Highway Association which took place at Boston recently was one of the best ever held by the organization, the mayors of seven cities making addresses to the 150 members present.

Firestone Branch to Move—Manager Thomas Glenn of the New England Firestone branch is completing his preparations to move the branch from Columbus avenue to the new structure erected for it on Commonwealth avenue at the junction of Beacon street in the Back Bay.

Stermer and Brown Join Ford Force—J. Oscar Stermer and George E. Brown have joined the sales force of the Ford Auto Company, of Baltimore. They take the places of Harry M. Crouch and Percy W. Schall, who have taken on the agency in this territory for the Paige-Detroit car.

Bresnahan with Hupp-Yeats—E. M. Bresnahan has accepted a position with the Hupp-Yeats Sales Company, at Toledo, O., where he will have charge of city sales of the Hupp-Yeats electric. Bresnahan was formerly connected with the sales department of the Gamble Motor Car Company.

White Promotions—John D. Howley has been appointed manager of the Philadelphia agency of the White company, 629-631-633 N. Broad street, succeeding Evans Church, the latter hav-

ing been promoted to assistant to Walter C. White, second vice-president of the company, with headquarters in Cleveland, O.

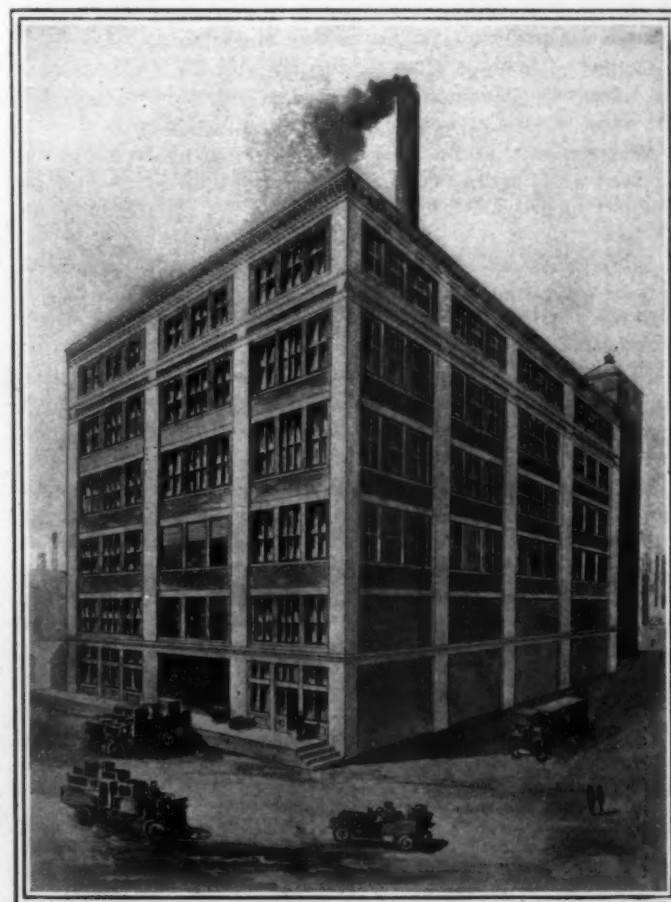
New Westcott Agents—The following have taken the agency for the Westcott car: Hammond-Lowell & Worden, Binghamton, N. Y., W. K. Noyes, Glen Cove, N. Y., W. H. Marble Automobile Company, Brockton, Mass., H. D. Drury, Essex Junction, Vt., and Frederick T. Davis, Bloomfield, N. J.

Banting to Distribute Patersons—An important deal was consummated in Toledo this week, when the Banting Machine Company secured rights as sole distributor for Patterson cars in more than half of the state of Ohio, including the Cleveland territory. The concern has represented the same line in more limited territory for some time.

Lippard-Stewart Engages Dahlquist—The Lippard-Stewart Motor Car Company, of Buffalo, N. Y., manufacturer of delivery cars, has engaged the services of Charles H. Dahlquist as assistant chief engineer. For two years past Mr. Dahlquist has been engaged with the International Harvester Company at Akron, O.

Fletcher Goes to Walter—The well-known automobile engineering partnership of Fletcher & Anglada, at 50 Church street, New York City, was dissolved on February 1. Mr. Anglada will continue the business in his own name and at the same address. Mr. Fletcher will devote his time exclusively to the interests of the Walter Motor Truck Company.

Cramp to Manage Kelly-Springfield Branch—William Q. Cramp has been appointed manager of the new branch opened by the Kelly-Springfield Tire Company at Buffalo, N. Y. Mr. Cramp has been for some time connected with the sale of Kelly-Springfield tires through his connection with the Seneca Rubber Company and moves into his new position as a result of the Kelly-Springfield Tire Company absorbing the Seneca Rubber Company.



Jersey City Factory of the Hartford Suspension Company



Abbott-Detroit 44 Chassis in mail service in Detroit

New Krit Agency—The Griffith Auto Sales Company, 127 South Elizabeth street, Lima, O., has taken the agency for the Krit car.

New Garage at Mt. Vernon—Walter G. Lake has completed a new garage and repair shop at 313 South Mulberry street, Mt. Vernon, O.

Adds Broc to Its Line—The Stratton-Woodcock Auto Sales Company, of Grand Rapids, Mich., has added the Broc Electric to its line of cars.

Mott to Sell Ohio Cars—J. C. F. Mott, 286 North Front street, Columbus, O., has taken the central Ohio agency for the Grabowsky motor trucks for the current year.

Hart-Kraft's New Agent—The American Motor Truck Company, Philadelphia, will have the exclusive agency for the Hart-Kraft trucks in the Quaker City during 1912.

Collins to Manage King Service—Lathrop Collins, of Chicago, has been appointed to the position of service manager for the King Motor Car Company, of Detroit, Michigan.

Western Rubber Branch—The Western Rubber & Supply Company, of Los Angeles, Cal., has opened a branch store at 66 South Fair Oaks avenue, Pasadena, Cal. J. B. Scullin is in charge.

Riley Promoted—Nelson S. Riley has been appointed manager of the Kansas City branch of the Studebaker Corporation. Mr. Riley had been for some time connected with the firm's branch at Denver.

New Garage for Huntington—The Fischer Motor Company will establish a garage at the corner of Second street and Fourth avenue, Huntington, W. Va. The head of the company, Mr. Fischer, is from Cincinnati, O.

Horton Opens Garage—W. F. Horton formerly salesman for A. M. Zimbrich, Syracuse, N. Y., has opened a garage at 130 Cambridge street and will handle the Bergdoll and Marathon cars in that city and vicinity.

Changes at Spokane—The E. M. F. Spokane Company has discontinued its retail department and has appointed the Northwest Auto Supply Company, 1201 First avenue, as Spokane agent for the E.M.F. and Flanders cars.

Adds Supply Department—J. S. Remick & Company, 1931 Twenty-second street, Sacramento, Cal., are installing an automobile supply department and will carry a line of the best accessories to be found in the country.

Another Garage for Coffeyville—Sheldon Wentworth and Jesse Brewster have formed the Coffeyville Garage Company at Coffeyville, Kan. Besides operating a garage the company will have the agency for the Overland car in this territory.

Big Order for Abbott—The Abbott Motor Company, Detroit, Mich., has begun shipping on an order for 300 cars, re-

ceived a few days ago from New York. The order represents a total value of \$567,000, exclusive of freight charges.

McCord Resigns—F. B. McCord, for some time with the Pacific Car Company, of Tacoma, Wash., as salesman, has resigned his position and has been succeeded by C. A. Dudley, formerly connected with the E-M-F Northwest Company at Seattle, Wash.

New Havoline Agents—The Havoline Oil Company has appointed the following new agents: W. A. B. Worley, Jacksonville, Fla., Augusta Overland Motor Company, Augusta, Ga., Euclid Oil Company, Cleveland, O., and the James Gray Kuhn Company, Pittsburgh, Pa.

Schacht to Open Memphis Branch—The Schacht Motor Car Company, of Cincinnati, O., is to open a factory branch in Memphis, Tenn., in charge of B. J. Barrier. A full line of Schacht cars will be carried. The new showrooms are located at High, Washington and Adams avenues.

Smith a Branch Manager—H. L. Smith, formerly a traveling salesman for the B. F. Goodrich Company, has been appointed manager of the Detroit branch of the Miller Rubber Company, of Akron. Mr. Smith has been identified with the tire industry for the past seven years.

Krit Branch in Quaker City—The Krit Motor Car Company has opened a factory branch in Philadelphia, through which it will conduct all its business in the state of Pennsylvania hereafter. Henry Lansdale, formerly with the Fiat Company, will be branch manager in full charge of the entire district.

New Kissel Branch—The new home of the Boston branch of the Kissel Motor Car Company, of Hartford, Wis., will have a 74-foot frontage on Commonwealth avenue at Pleasant street. The building will be 200 feet in depth and will contain a handsome display and salesroom, a modern garage and an adequate service department.

New Republic Branch—The Republic Rubber Company, of Youngstown, O., has opened a branch in Columbus, O., located at 215 North Front street, with B. B. Harris and R. W. Llewellyn in charge as managers. The agency will be operated under the name of the Republic Tire & Rubber Company and will act as distributor for forty counties.

Lowe Takes Hagstrom Agency—The Lowe Motor Supplies Company, of 1727 Broadway, New York City, has taken the agency for the products of the Hagstrom Brothers Manufacturing Company, Lindsborg, Kan., the latter having dissolved its metropolitan branch. The line includes blowout patches, spark-plugs, spark-plug vises, priming-cups and carriage washers.

Buick's New Grand Rapids Home—The Buick Auto Sales Company has opened its new headquarters and garage at South Division and Pleasant streets, Grand Rapids, Mich., where it has a fine showroom, 60 x 25 feet, and garage room, 70 x 100 feet, affording ample facilities for handling the sales and service business. Claude McAuley has charge of the repair department.

Syracuse Club to Dine—The Automobile Club of Syracuse will hold its tenth annual banquet at the Onondaga Thursday, February 29. This being the "extra day" of leap year, it is expected that some suitable "stunt" will be forthcoming. Arrangements are in the hands of a committee consisting of Dean E. Brown, chairman; B. E. Watson, T. C. Meachem, C. A. Benjamin and C. C. Bradley, Jr.

McCondra Buys Arizona Company—John A. McCondra, formerly with the Pierce-Arrow Company's representative in New York and Michigan, has purchased the garage of the Arizona Auto Company, of Phoenix, Ariz., and has reopened it under the firm name of the Transcontinental Auto Company. Mr. McCondra holds the agency for the Cutting and Cole, which up to this time have not been represented in Arizona, and since his arrival has taken over the agency for the Hupmobile.

Indianapolis Fire-Wagon—The fire department wagon recently placed in service by the Indianapolis Fire Department was built by the Mais Motor Truck Company, of Indianapolis, Ind., and was constructed with the idea of obtaining a speed of 30 to 40 miles an hour.

Woman Truck Dealer—The only woman automobile truck dealer in the United States has begun operations in Denver, Col., as a member of the United States Sales Company, a corporation formed here for the purpose of distributing the output of the Wichita Falls Truck Company throughout the entire United States. The woman is Mrs. M. C. McIntyre, of Denver, the other incorporator of the company is Myron H. Aitken, of Fort Collins, Col.

Smith Company Expanding—To make the organization more compact and improve its working basis, the active stockholders of the A. O. Smith Company, of Milwaukee, Wis., one of the largest manufacturers of motors, axles, parts, complete pleasure and commercial cars and pressed-steel frames, are buying up all stocks held by capital other than that which is intimately connected with the organization. The company is capitalized at \$1,200,000 and all but \$500,000 is held by the active members in direct charge of the business.

January Registration in Ohio—According to the report of the Ohio State Registrar of Automobiles, J. A. Shearer, for the month of January 19, 1912 automobiles were registered by private owners and 758 dealers and manufacturers were registered. There were 16,955 gasoline and 2,287 electric cars registered. Chauffeurs to the number of 3,000 were registered. The total receipts for the month were \$108,615.50, as compared with \$89,369 in January, 1911. During January, 1911, 16,600 cars were registered, while the total for January, 1912, was exactly 20,000. A large part of the receipts will be turned over to the state highway department for the building and repair of the state's highways.

Some Montreal Notes—Frigon & Baker, in addition to handling the King car, have taken the agency for the Winton. Tuckwell Brothers are local representatives for the Triple Tread Manufacturing Company, of Canada, whose head office and factory is located at Winnipeg, Man. Firestone tires are now handled in Montreal by J. Marceau. R. N. O. Harrington has been appointed Canadian agent for the Express Auto Oil Company. Havoline oils will be handled for distribution in Canada by the Legare Cadbois Auto Company. A. Beaudry, 609 St. Urbain street, has been appointed distributor for the Province of Quebec for the American car. W. J. O'Leary & Company are featuring the Overland Car.

Firestone Changes—George M. Martin, for some time past manager of the St. Louis branch of the Firestone Tire & Rubber Company, has been transferred to Minneapolis, to take charge of the new Firestone branch which has just been established at 827 Hennepin avenue, Minneapolis. J. P. Patterson, who has been office manager of the Chicago branch of the Firestone Tire & Rubber Company, has been promoted to the management of

the St. Louis branch of the company. J. F. Singleton, formerly advertising manager of the Firestone Tire & Rubber Company, Akron, O., has resigned and is now associated with the Taylor-Critchfield Advertising Agency, Chicago. Frank H. Martin has been appointed manager of the motor tire department.

Automobile Incorporations

AUTOMOBILES AND PARTS

BOSTON, MASS.—Expansion Spring Rim and Tire Company; capital, \$500,000; to manufacture and sell automobile wheels and tires. Incorporator: C. O. Doyle.

BROOKLYN, N. Y.—Fishback Motor Company; capital, \$3,000,000; to engage in the automobile business. Incorporators: J. J. Wittenberg, P. R. Galligan, J. W. Ebbs.

BUFFALO, N. Y.—Gray Manufacturing Company; capital, \$30,000; to manufacture special machinery, including electric motor trucks for serving annealing ovens in iron foundries. Incorporators: I. Gray, B. B. Pannett, E. C. Randall.

BYESVILLE, OHIO.—Byesville Motor Company; capital, \$100,000; to manufacture gas engines and machinery. Incorporators: R. S. Hall, C. R. Austin, J. A. Pryer, E. M. Sperer, J. Glaser.

CHATTANOOGA, TENN.—Chattanooga Truck Company; capital, \$4,000; to manufacture automobile trucks. Incorporators: C. M. Willingham, A. C. Willingham, Z. H. Taylor, R. L. Ely.

CHICAGO, ILL.—Pope-Hartford Company; capital, \$20,000; to manufacture automobiles and accessories. Incorporators: J. L. Russell, J. Shields, E. X. Jones.

CLEARFIELD, IA.—Clearfield Automobile Company; capital, \$5,000; to engage in the automobile business. Incorporators: J. V. Wright, A. B. Clewell, H. B. Young.

CLEVELAND, OHIO.—Judd Automobile Company; capital, \$20,000; to buy and sell automobiles and to operate a garage and repair shop. Incorporators: J. F. Judd, Jr.; C. A. Lewis, H. E. Davis, R. F. Blakeslee, I. T. Quick.

CLEVELAND, OHIO.—M. E. Bertram Engine Company; capital, \$40,000; to manufacture and deal in gasoline engines for automobiles, etc. Incorporators: M. E. Bertram, A. A. Guthrie, K. S. Smith, L. M. Keller, A. G. Wallace.

FLORENCE, S. C.—J. D. Bridges Company; capital, \$8,000; to engage in the automobile business. Incorporators: J. D. Bridges, W. F. Whitley.

LANGHORNE, PA.—Langhorne Transportation Company; capital, \$10,000; to deal in automobiles and parts.

NEW YORK CITY.—Requa European Motor Company; capital, \$10,000; to manufacture engines, automobiles, etc. Incorporators: L. F. Requa, F. Charavv, E. S. Roach.

NEW YORK CITY.—Rimach Wheel Company, Inc.; capital, \$500; to manufacture automobile wheels and parts. Incorporators: H. E. S. Chayes, W. F. Wood.

PHILADELPHIA, PA.—Rome Motor Manufacturing Company; capital, \$500,000; to manufacture automobiles, cars and wagons.

RICHMOND, VA.—Lozier Motor Sales Corporation; capital, \$5,000; to \$25,000; to engage in the automobile business. Incorporators: W. F. Smith, J. R. Smith, D. B. Regester.

GARAGES AND ACCESSORIES

ANDERSON, IND.—Simplex Manufacturing Company; capital, \$50,000; to manufacture the Stanley self-starter attachment for automobiles. Incorporators: W. R. Poland, J. F. Stanley, W. S. Poling.

BROOKLYN, N. Y.—Advance Rubber Company; capital, \$150,000; to manufacture automobile tires, rubber goods, etc. Incorporators: G. F. Allison, C. Pinney, W. I. Glover.

BUFFALO, OHIO.—Frontier Tire and Rubber Company; capital, \$250,000; to manufacture automobile tires and rubber goods. Incorporators: C. F. Benzing, C. A. Castor.

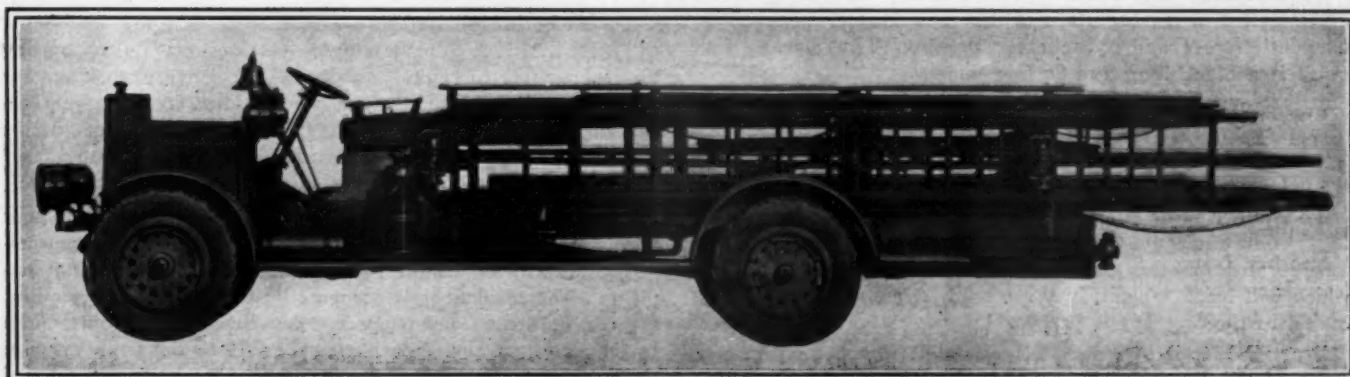
DALLAS, TEXAS.—Stafford Illuminated Auto Lamp and Number Company; capital, \$25,000; to manufacture and sell automobile appliances. Incorporators: M. M. Parks, F. W. Schaub, F. Greenwood and others.

DETROIT, MICH.—T. F. C. Manufacturing Company; capital, \$30,000; to manufacture engine starters and other automobile accessories. Incorporators: C. R. Cracy, R. E. Farr and others.

DOVER, DEL.—National Auto Spring Tire Company; capital, \$200,000; to engage in the manufacture and sale of automobile accessories. Incorporators: R. J. Lackner, A. H. Karr, F. A. McCloskey.

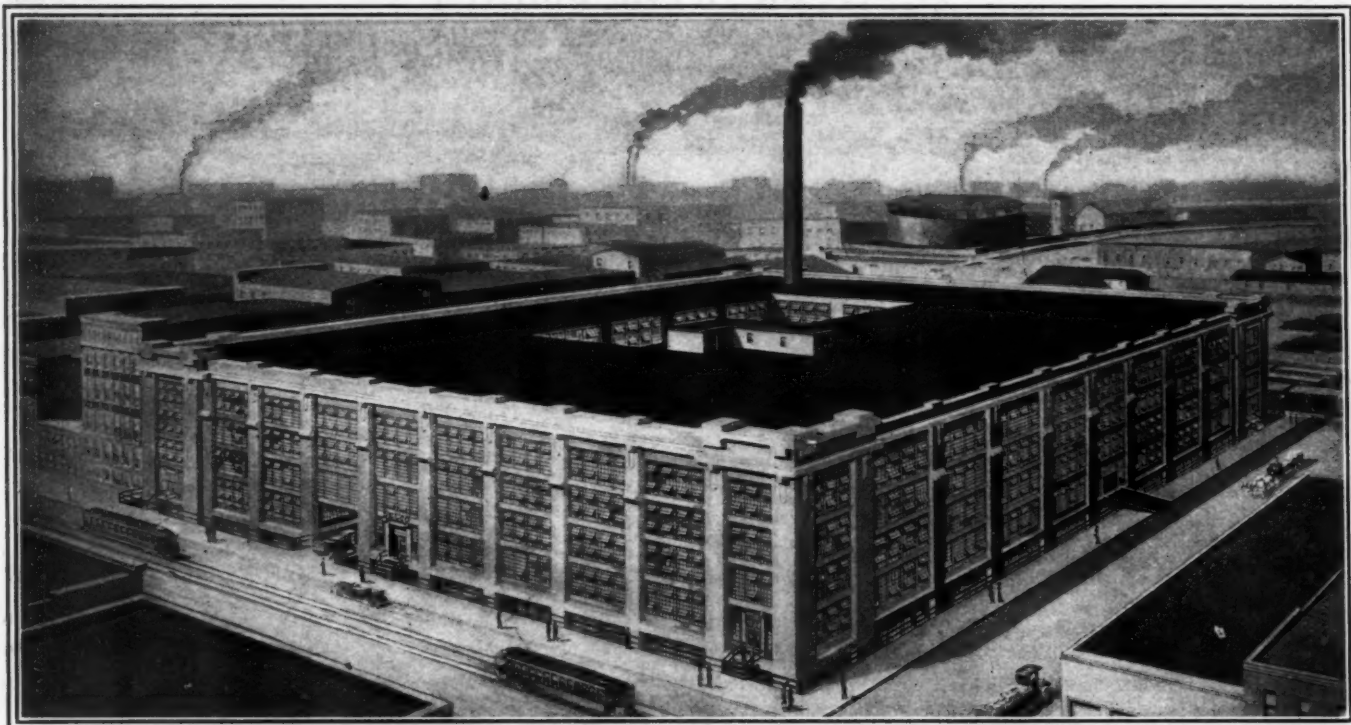
FISKEILL LANDING, N. Y.—North Avenue Garage Company; capital, \$10,000; to conduct a garage business. Incorporators: R. S. Tompkins, R. S. Jones, C. N. Pitcher.

MANITOWOC, WIS.—American Compensating Valve Company; capital, \$25,000; to manufacture and sell a device for improving carburetion in gasoline engines. Incorporators: L. Stupecky, S. D. Eckels, C. Zeman.



Mais motor truck adopted as a hook-and-ladder by the Fire Department of Indianapolis

OF INTEREST *to the* INDUSTRY



Factory recently opened by the Dayton Engineering Laboratories Company at Dayton, O.

NEW FACTORY AT DAYTON—The Dayton Engineering Laboratories Company, of Dayton, O., with branch factory at Chicago, Ill., has opened a new factory at Dayton for the manufacture of electric starting appliances for automobile engines. The company will continue the making of Delco ignition apparatus in its Chicago plant.

American in Lima—The Motor Sales Company, 123 East High street, Lima, O., has taken the agency for the American line of cars.

To Sell Carbo-Light Tanks—The Ohio Carbo-Light Sales Company, 149 North Fourth street, Columbus, O., has been organized to act as sales agent for the New Carbo-Light tanks in Ohio.

Lexington in Boston—The Lexington Company of New England has been organized in Boston, Mass., to act as the selling and distributing agent of the Lexington Motor Car Company throughout New England.

Ford Kansas City Plant—The necessary machinery is being installed in the big plant of the Ford Motor Company, at Eleventh street and Winchester avenue. The Kansas City plant is a block long and 80 feet wide.

Top Factory for Sioux City—A factory for the manufacture of automobile tops will be opened in Sioux City, Ia., some time this month. E. E. Stickler, of Omaha, Neb., will be in charge of the new institution, which will employ fifteen men at the start.

To Build Engine Plant—Alexander Winton, of the Winton Motor Car Company, Cleveland, O., is at the head of the newly incorporated Winton Gas Engine & Manufacturing Company which will build a plant at West 106th street, Cleveland. The capital of the company is \$200,000.

Prest-O-Lite in Atlanta—Atlanta will soon have a branch plant of the Prest-O-Lite Company, of Indianapolis. Property has been purchased in Kirk street, near Peters and

McDaniel streets, on which a brick factory building will be erected. The cost will be \$20,000 to \$25,000.

New Building for Republic—The new calender building of the Republic Rubber Company, located at Youngstown, O., which is now under construction, is to be of steel and brick and will be 200 by 85 feet with eight 25-foot bays. The construction will be fireproof and of the saw-tooth type.

Bed Makers to Build Trucks—The Marion Iron & Brass Bed Company, of Cincinnati, O., has changed its name to the Harwood & Bailey Manufacturing Company for the purpose of making automobile trucks. The trucks will be built in a separate plant and will not interfere with the manufacture of beds.

Sheldon to Build Truck Chassis—The Sheldon Axle Company, of Wilkes-Barre, Pa., has decided to begin the manufacture of a 1-ton automobile truck chassis, without motor or radiator, about March 1. Foundations for an assembling plant have been laid. When finished the building will measure 60 by 100 feet. The company intends to make 1,500 trucks next year.

To Make Motor Trucks—The Kuhner Engine Company, of Oxford, Md., is to make a light model automobile truck using the Kuhner type of engine and suitable for delivery work and for all sorts of farm hauling. The company has erected a substantial and well-equipped factory at Oxford, 50 by 160 feet, at the terminus of the Oxford branch of the Pennsylvania railroad.

Big Hartford Factory—The Hartford Suspension Company's factory at Jersey City, N. J., occupies 40,000 feet of floor space. The first and second floors are occupied by the manufacturing department, engine room, shipping and receiving departments. The third floor is occupied by the assembling, grinding, brazing, hardening and tempering departments; the fourth floor by the manufacturing department; the fifth by the screw machine department, and the sixth by the tool room, experimental and jack departments.

PATENTS GONE TO ISSUE

CARBURETER—A float-feed construction containing a pin for a gauge.

3. This patent relates to a carbureter, Fig. 1, comprising a casing and fuel chamber, consisting of a bowl and its cover. A nozzle is located centrally in the casing and the flow of fuel to the chamber is regulated by a float-operated valve. In the casing and next to the nozzle a gauge-pin is located, which serves to determine the height of the fuel in the chamber. An opening in the cover permits of movement of the gauge-pin, the opening being closed by a cap.

No. 1,016,252—to James M. Dayton, assignor to the Excelsior Needle Company, Torrington, Conn. Granted February 6, 1912; filed November 2, 1909.

Pneumatic Suspension—In which the principle of the tire is used to save the frame and body from shocks.

1. Fig. 2 shows the subject matter of this patent, comprising a casing combined with axle and frame of a vehicle. An annular, resilient member is vertically arranged in the casing, engaged at its periphery by a block and freely movable in the casing in all directions to compress the resilient member when so moved. Casing and block have similar peripheral re-entrant portions, axle and frame member being connected with block and casing, the block being secured to one of the two members mentioned while the casing at its re-entrant portion is held to the other members.

No. 1,016,810—to John Williamson, Brooklyn, N. Y. Granted February 6, 1912; filed March 31, 1911.

Shock Absorber—In which a fluid serves as the absorbing and equalizing medium.

4. This construction, Fig. 3, comprises a chamber formed by relatively movable elements adapted to act, under varying pressure, on a liquid in the chamber. One of the elements has an opening permitting of the liquid passing through it. From the other element projects a part capable of moving into and out of the opening mentioned, so as to control the flow of the liquid therethrough. The latter member has a tapered portion, the larger end of which is directed toward the opening, the co-operative wall of the latter being comparatively short. Thereby the larger end of the tapering portion is enabled to pass through and beyond it.

No. 1,016,514—to Frederik Nielsen, Boston, Mass. Granted February 6, 1912; filed October 15, 1910.

Lamp Bracket—Being a construction for attaching a lamp to a storage-battery system.

4. This patent relates to a bracket comprising a base portion of insulating material shaped to conform and adapted to be secured to a cap. A lamp-supporting holder which is adapted to

carry a storage-battery lamp is mounted on the base mentioned.

No. 1,016,730—to Charles B. Bartley, Pittsburgh, Pa. Granted February 6, 1912; filed September 26, 1911.

Means for Tire Inflation on Travel—Device for refilling the pneumatics while the vehicle is in motion.

3. This construction combines a pressure piston pump for inflating a tire, with means for reciprocating the piston rod of the pump. A clutch lever mounted on a pivot is provided with an aperture through which the piston-rod slides; a chamber is located between the pump barrel and the tire, and a rod is moved outwardly from that chamber when the tire pressure exceeds a predetermined point. One end of this rod is connected to one end of the clutch lever, so that the latter may be canted and the sides of its aperture engage the piston rod.

No. 1,016,364—to J. T. Rodway and J. Esson, Johannesburg. Granted February 6, 1912; filed December 2, 1910.

Anti-Skidding Device—An attachment to the tire to prevent slipping.

1. This patent refers to a construction consisting of a tread-plate, oblique diverging flanges and transverse flanges arranged on the outer face of the plate. Longitudinal, inwardly extending flanges are arranged at the lateral edges of the tread-plate, which is slotted near the lateral flanges, side plates bifurcating at one end of the plate and formed into hooks at the extremity of the bifurcations mentioned. These hooks engage the tread-plates through the slots near the flanges, and a flexible device exerts a tension on the plates in the direction of the center of the wheel.

No. 1,016,846—to Charles H. Myers, Franklin, Pa. Granted February 6, 1912; filed March 20, 1911.

Headlight-Turning Device—Apparatus for altering the direction of headlight beams.

3. This device embodies an actuating rod on which a drum is loosely mounted. There are some means for imparting an initial movement to the drum independently of the rod and for subsequently compelling the simultaneous movement of the rod and drum. There is a lamp-supporting post mounted on a support and an operative connection between post and rod.

No. 1,014,627—to Raymond G. Gaskill, Port Deposit, Md. Granted January 9, 1912; filed March 9, 1911.

Nut Lock—Being a device for locking a nut in position. This patent relates to a nut lock comprising a bolt having a longitudinal slot at its outer end, a nut and receiving sleeve with a cross-plate mounted on said bolt. The cross-plate is adapted to project in the slot, and a cotter-pin through sleeve, bolt and plate.

No. 1,016,237—to Joseph L. Tinnin, Ripon, Cal. Granted January 30, 1912; filed March 29, 1911.

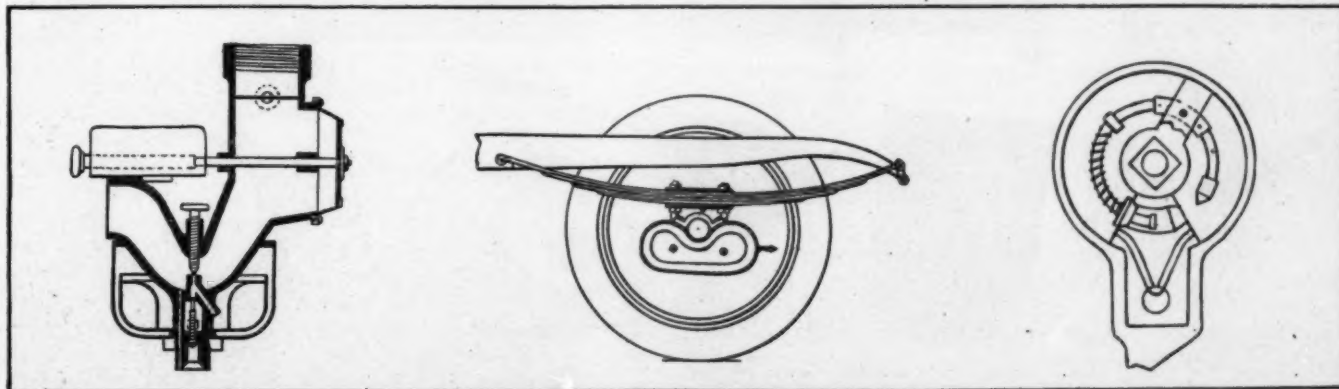


Fig. 1—Dayton carbureter

Fig. 2—Williamson pneumatic suspension

Fig. 3—Nielsen shock absorber

Newest Ideas Among the Accessories

Volt-Ammeter, Indicator Gauge, Grease Gun, Globe Auto-Lock and Quixtart Starting Fluid

Eldredge Volt-Ammeter

THIS instrument, Fig. 2, has the shape and size of a watch and a range from 0 to 8 volts and 0 to 30 amperes. The indicator is connected to a magnetic armature, which is repulsed by a solenoid core in the degree the latter is magnetized by an electric current flowing through its coil. As the meter is of the soft-iron type it indicates current in either direction. Fig. 2 shows two insulated spurs at the bottom, one being marked volts on the dial and the other amperes. In measuring the output of a cell for either voltage or amperage, one terminal is connected to the proper spur and the other terminal to the casing of the meter.

All scales are calibrated by hand, individually on each instrument, and among the high-class materials used in its manufacture the non-magnetic phosphor-bronze controlling spring, which insures continued accuracy of the instrument deserves mention.

The Eldredge Electric Manufacturing Company, of Springfield, Mass., furnish this instrument in a fine leather case.

Standard Indicator Gauge

An illustration of the indicator gauge, Fig. 3, of the Standard Gauge Manufacturing Company, Foxboro, Mass., shows an instrument for measuring the pressure in an oil or gasoline lead by connecting it to the same. The plain scale on the dial shows pressures from 0 to 4 pounds per square inch, giving a total range of 5 pounds. The construction consists of an elastic metal tube into which the medium under pressure enters, bending the tube and moving the indicator finger, which is connected to it. The casing is of brass, with the front portion polished.

Townsend Grease Gun

The new grease gun of S. P. Townsend & Company, of Orange, N. J., is seen in Fig. 1. It consists of a double brass cylinder, the inner one of which may be drawn out at one end.

in order to provide an opening for filling in the grease with the paddle P. With the gun full of grease, the inner cylinder is pushed fully into the outer casing and the whole apparatus closed by screwing the cover C on the thread T. The gun is filled when the piston P₁ is in the position illustrated, and to force the grease out of the closed gun, the handle H is rotated, turning the screwed shaft S, which is secured against longitudinal movement where it bears in the top plate of the inner cylinder. The rotation of the screwed shaft forces the piston down into the cylinder and the grease out of the lower end to which a spout is attached.

Globe Auto Lock

A device positively shutting off the flow of gasoline from the tank is made by the Globe Auto Lock Company, of Canisteo, N. Y. It is a perfectly tight valve regulated by a suitable handle and it may be locked when in the shut-off position. The lock prevents evaporation of the gasoline by way of the fuel lead and carburetor when the car stands still; at the same time it is locked in place and cannot be started by anyone without the key. This key is very small and is carried in the vest pocket, a different key being made for every Globe Auto Lock.

Quixtart Starting Fluid

This chemical is intended for easily starting a motor in cold weather, when much difficulty is encountered in the normal process. It consists of highly combustible hydrocarbons, which are in the liquid state and inclosed in an airtight metal can. To start the engine in cold weather one or two teaspoonfuls are poured into the auxiliary air inlet of the carburetor or into a priming cup. In this manner the mixture is immediately enriched to such a degree as to become highly volatile and inflammable. The Quixtart Chemical Company, of Providence, R. I., is the maker of this compound.

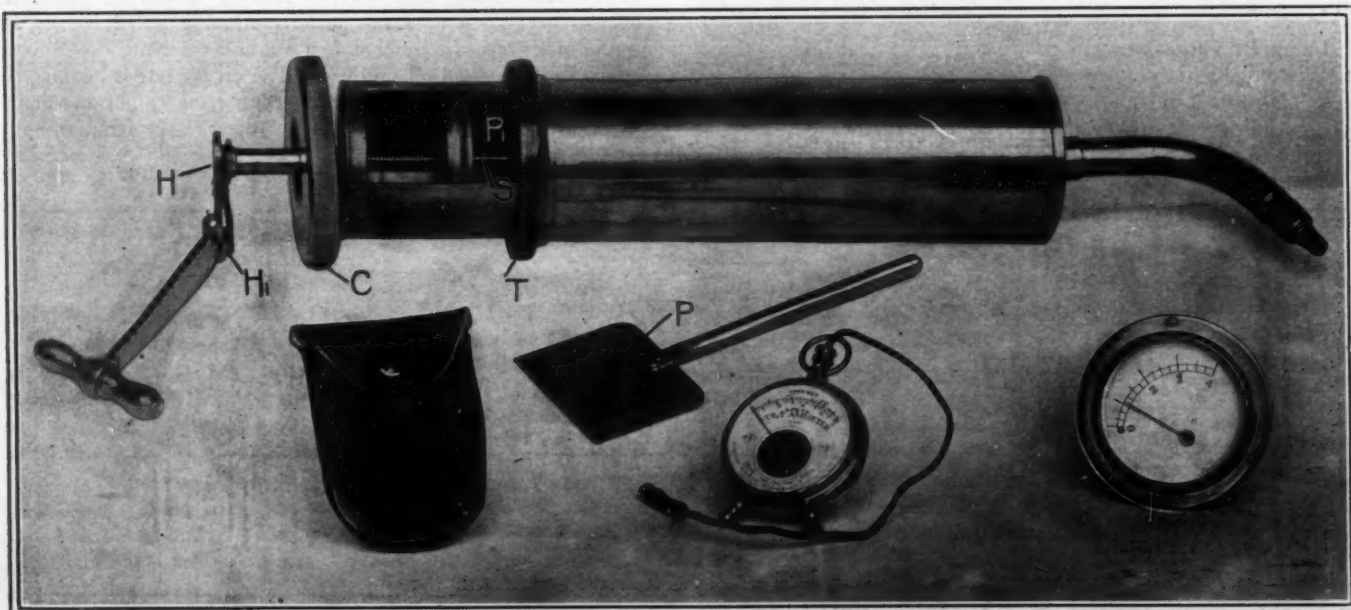


Fig. 1—Townsend grease gun

Fig. 2—Eldredge volt-ammeter

Fig. 3—Standard indicator gauge